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The Antiseptic

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A Monthly Journal of Medicine & Surgery

Published on the 15th of every Month

Edited by : Drs. U. RAMA RAU & U. VASUDEVA RAU, M.B., B.S.,

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The Late Dr. U. RAMA RAU

We regret to announce the death of our founder and senior Editor, Dr. U. RAMA RAU of heart failure on Monday the 12th May '52 at his residence at the mature age of 80. Details of his life sketch and of his work will be published in the next issue.

—U. VASUDEVA RAU, *Editor.*

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Original Articles

SOME REVIEWS ON ADVANCES IN ORTHOPÆDIC CONDITIONS*

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The preservation and restoration of the function of the skeletal system, its articulations and associated structures will prevent deformities.

General surgeons and specialists realise very well that the fundamentals of medicine and surgery are very broad based and that the specialist branch requires careful and methodical work; utilisation of the knowledge of Physiology, Bio-chemistry and Pathology for the benefit of the patients and the improvement of knowledge is increasingly noticed.

Treatment of injuries involving bones and joints.

First Aid :—This is very essential to obtain good results.

(a) Strains and sprains :—Exclude fracture.

The object of treatment is to prevent œdma and hæmatoma. Application of cold, compression and rest to the injured part is required. Heat should *not* be applied.

(b) Treatment of open injuries :—The use of penicillin by injections in various doses has minimised the incidence of infection in open injuries of soft parts, tendons and bones.

* Specially contributed to The Antiseptic.

The second world war led to specialisation in the treatment of injuries of soft parts and bones and special hospitals have come into existence in many parts of the world.

First treatment.—Debridement of the wound within eight hours and primary union of wounds is the accepted practice. Antibiotics cannot replace the primary treatment of wounds by debridement. Early replacement of skin-loss by skin-grafts after debridement, has been accepted and practised. This is a very important advance in treatment to secure rapid healing.

(c) Emergency treatment of trauma of bone and joints :—Careful, adequate wound excision and immediate primary closure is the treatment of compound fracture. There is a great reduction in the occurrence of osteomyelitis. Skeletal traction is a safe and simple method in the treatment of compound fractures of long bones.

(d) Surgery of the hand :—A new development has been the greater attention paid to injuries of the hand. The hand is a special organ and every means should be adopted to secure a working hand for all classes of the population. Debridement of wounds under an anæsthetic with a bloodless field by the use of the sphygmomanometer cuff is meticulously done. Primary skin-grafting for skin-losses has given good results.

Wound of the hand :—Early treatment is necessary; meticulous cleaning of the hand is essential to prevent infection. The debridement should be carefully done to preserve all viable skin. Immediate primary closure by suture or by split thickness graft is done. Movements of the fingers should be practised from the beginning. Complete destruction of the blood supply to an extremity or to a portion of it usually demands an amputation.

(e) The use of external skeletal splinting by the Roger Anderson method was used by me in 1947 and 1948 but was abandoned. I was interested to read in the *Journal of Bone and Joint Surgery* for July 1949 that the Committee of Fractures and Traumatic conditions in U. S. A. noted many complications from the use of the apparatus and withdrew the apparatus from Military Hospitals except for its occasional use by experts.

(*f*) The pathology of the slipped epiphysis has been studied by making a series of sections of the diseased area. It is reported that histological evidence goes to show that the change takes place in the epiphyseal cartilage. The cartilage undergoes fibrosis instead of producing endochondral bone. All the lesions observed in the head and neck are secondary. (Late Dr. Scheirer, Head of Department of Pathology, Bung Institute, Antwerp, Belgium).

(*g*) *Fractures of both bones of the forearm in adults* :—Length, apposition and axial alignments and normal rotation alignments should be regained. The chances for occurrence of non-union and mal-union are greater because of the difficulties in reducing and

maintaining reduction of two parallel bones in the presence of the pronating and supinating muscles, which have angulatory and rotatory influences.

Rotational alignment of the radius following fractures of the forearm was studied by Evans in 1945 by rœntgenograms. The degree of residual rotational deformity of the proximal radial fragment was determined and it corresponded with the limitation of movement. Determination of the degree of rotation of the proximal radial fragment is made by the configuration of the proximal portion of the radius particularly of the bicipetal tuberosity. The relationship of the cancellous portion to the shaft of the radius and the shape of the bicipetal curve of the radius in the normal position is noted in a chart as also in the various positions of pronation and supination.

Pronation is rarely limited to an appreciable degree unless anterior angulation of the radius resulted in a bone block.

Limitation of supination is due to the following causes :—

(1) Residual supination of the proximal radial fragment.

(2) Narrowing of the interosseous space due to appositional angulation of one or both bones.

(3) Residual posterior angulation of fracture of the ulna forming a bone block.

(4) Derangement of the inferior radio-ulnar joint; symptoms are present, if there is anterior or posterior angulation of one of the two bones.

If open reduction is performed, internal fixation is necessary to secure good results. Primary inlay-bone-grafts—6 times the diameter of the shaft in length and two-thirds its diameter in width —bevelled at each end and fixed with one or more screws, give good results in twelve weeks. Any large comminuted fragment should be fixed with a screw either to the proximal or distal fragment.

(h) Intra-medullary pinning:—The use of an intra-medullary pin is indicated in transverse or oblique fractures which are in an area 3" below the lesser trochanter or 6" above the adductor tubercle.

It is better not to use it in comminuted fractures and compound fractures. The advantages are, that there is less risk of non-union, less callus formation and the patients can move the knee in a much shorter time. A committee of selected surgeons is using this method in U.S.A. and trying to perfect the technique and the instruments. Their final report is awaited.

(i) Fractures of the neck of the femur in children are rare as compared with adults, such as 2 in 600. They are serious. They result from severe trauma. Aseptic necrosis of the head is fairly common (33 %). When the angle of inclination is less than 50%—Whitman's plaster after reduction—2 months. When

the angle of inclination is more than 50 % intertrochanteric osteotomy with a fibular graft into the metaphysis was sufficient to obtain consolidation. But the final result was coxa vara. Cases seen late in coxa vara position should be allowed to unite and later on, osteotomy should be done to correct the position, otherwise aseptic necrosis may supervene.

(j) Fractures of os-calcis :—Fracture of anterior process of os calcis is either overlooked or rare. They are of industrial origin. A hand truck striking the subject from behind in the neighbourhood of the calf causes strong dorsiflexion of the foot and ankle. A posterior view X-ray is of no use ; a lateral view does not help ; oblique views are required to show the anterior surface of the os calcis. The treatment consists of a simple plaster cast, no weight-bearing for four weeks and slow convalescence for about four months.

Surgery of the hip joint.—This has been practised extensively in various countries. Cup arthroplasty was originally introduced for cases of fracture of the neck of the femur where the head is necrosed and the neck had disappeared. A film demonstrating the operation is shown in India.

This operation is now performed for osteo-arthritis of the hip, for the late cases of osteochondritis, for fracture dislocations and for slipped femoral epiphysis. The patients should be in good and fit condition and should be able to co-operate in the follow-up after-treatment and exercises.

Subtrochanteric osteotomy for ununited fractures of the neck of the femur has been a very useful and successful procedure since 1930. To prevent knee stiffness due to immobilisation in plaster, an osteotomy nail to produce internal splinting of fragments has been used.

(*Sherwin staples*) :—The limb is kept in abduction (30°) and neutral position in a Thomas splint; quadriceps exercises are practised with knee movements.

Vascular changes are common in the epiphysis of the femoral head after trauma of any form and after reduction of congenital dislocations. They are not predictable. When the X-ray shows avascular changes, weight-bearing should be prevented.

Arthroplasty of the hip :—(1) For non-union with necrosis of head of femur and absorption of femoral neck.

(2) Osteo-arthritis of hip joint.

(3) Arthritis after Legg-Perthes disease, fracture destruction of hip joint, slipped femoral epiphysis.

The steps of the operation are :—Removal of head and neck of femur ; severance of all muscle attachments from greater trochanter ; osteotomy of the shaft 4" from the greater trochanter ; tilting upper fragment medially to restore the normal angle of femur 135° ; fixing the fragments in this position by a new flanged nail ;

greater trochanter is covered with Khellum cup and plated in the acetabulum; extremity slightly abducted and realtered; and gluteus medius is reattached through drill holes to the lateral aspect of the distal end of the proximal fragment.

Infantile ankylosis of temporomandibular joint:—Surgical correction is the only treatment. Though excision of condyle at an early age is not theoretically good as the ramus may not grow, use of the jaw and mastication leads to growth and an operation is recommended. Unilateral fracture-dislocation of the condyle may produce ankylosis in bigger children. After-treatment is very essential to keep up the normal movements.

Septic chondritis of the costal cartilages:—The onset is slow, and insidious. Possible causes are:—actinomycosis, blastomycosis, tuberculosis, gumma, paratyphoid and typhoid. May subside spontaneously without suppuration. Total subperiosteal resection is the treatment.

Acute suppurative arthritis of the hip:—It is now common practice for all infections to be treated by sulpha drugs and antibiotics. The surgical treatment and the fundamental principles of treatment of an inflamed joint cannot be ignored. This neglect has resulted in disaster in many places and more so in the hip joint. When once suppuration has taken place, there is no use of relying on antibiotics. The joint should be aspirated under an anæsthetic and if there is pus the joint should be drained by incision. This method of treatment saved many joints before the advent of antibiotics.

An antibiotic in the blood stream cannot come effectively in contact with the bacteria of the pyogenic joint or an abscess cavity. Aspiration followed by injection of an antibiotic is not enough in the case of a hip joint. To relieve tension and to remove the enzymes that will destroy the cartilage are both urgent.

Reactions of joints to trauma:—There is a fibroblastic response which may be ordinary or present sometimes in an exaggerated form.

Articular cartilage is destroyed by (*a*) degeneration of articular cartilage as seen in osteo-arthritis;

(*b*) destruction through cellular action as seen in rheumatoid and tuberculous arthritis;

(*c*) by the action of proteolytic enzyme released by dead polymorphs as seen in pyogenic arthritis. The cartilage is actually dissolved through the action of the enzyme released by the neutrophils (Phemister); and

(*d*) trauma, especially fractures into joints will produce hyperplasia of fibrous tissue.

Protracted immobilisation induces fibrosis. Shoulder, hip and knee joints are very prone to these adhesions and dense fibrosis.

Severe joint trauma and protracted immobilisation and also deficiency of adrenal cortical hormone are conducive to the formation of fibroplasia in the capsule and around the joints.

Prevention or reduction of adhesions :—

(1) Early and accurate reduction of fractures particularly those involving joints.

(2) Early reduction of dislocations.

(3) Early mobilisation of joints after fractures, particularly those involving the joint.

(4) Systematic active exercise of muscles even when they are kept in plaster or when traction is applied.

(5) Early covering of raw surfaces with skin grafts ; especially over joint surfaces.

(6) Resolution of osteomyelitic foci, as early as possible, particularly when near a joint.

(7) Early evacuation of joint-hæmorrhage.

(8) Attention to the treatment of circulatory disturbances and alterations of sympathetic innervation, for example Sudeck atrophy.

(9) Use of Cortisone or ACTH in selected cases.

Use of homogeneous refrigerated bone-transplants :—

(1) Grafts may be preserved for long periods for surgical use.

(2) Such grafts are well tolerated by human tissues and there is very little risk of infection.

(3) The healing of such grafts takes place by a process of invasion, absorption and replacement.

(4) The results obtained are identical with those obtained from the use of autogenous bone-grafts.

(5) The operation of a bone bank is safe and practicable ; it offers great advantages to the surgeon by the availability and abundance of bone and to the patient by the avoidance of a second operation to obtain graft.

The use of autogenous fresh bone-graft, boiled bone-graft and frozen merthiolate grafts :—Boiled or frozen or merthiolated bone-grafts have also come into common use in U.S.A.

Recurrent dislocation of patella :—Transplantation of tibial tubercle is good ; full flexion of the knee is allowed on the next day.

Disc syndrome :—Conservative treatment is insisted on at first in all the clinics both in U.S.A. and on the European continent. The disc is comparatively an avascular structure, and takes time to heal.

Disc protrusion is now thought to be the commonest cause of acute and chronic low backache and sciatic syndrome at all ages. The lesion is now described as a tear and bulge of the postero-lateral parts.

Complete bed rest for four weeks in plaster jacket is the best method of securing rest, then ambulation for two months with plaster and then a spinal brace for three months would be a suitable form of conservative treatment.

Traction will reduce the bulge in cases of backache when forward flexion is present.

Manipulation under an anæsthetic should not be done in acute cases : (this was a method of treatment which was practised before 1940 for a decade in cases of backache). Cervical protrusions are similarly treated by rest.

Intravenous procaine for relief of pain :—This is stated to have no place in the treatment of pain (*B.M.J.*, page 266, Feb. 2nd, '52).

Burns.—Most teaching hospitals in England have opened 'Burns Units' and there are many notable advances. No case should be considered as insignificant. The plasma loss is continuous and goes on for twenty four hours or more. Mortality has been recorded when the area of burnt surface is 15% in adults and 10% in children.

A solution of 0·4% sodium lactate with glucose and fruit juice is recommended as a drink. Intravenous therapy is required if the burnt body surface area is 15% in adults and 10% in children. The ideal replacement fluid is plasma. The clinical condition and urinary output as estimated by catheterisation will give an indication of the amount of plasma required. Roughly one to one and a half litres of plasma for each 10% of the burnt area is required, half in the first six hours and the other half in the next 18 hours and a further small volume may be required.

Plasma is now readily available. "Dextran" is a good substitute; it is also available now in this country and is both satisfactory and safe.

Cases of burns should be isolated, masks should be worn by all attendants : silent infection with organisms inhibit the taking of grafts and increase the tendency of grafts to contract. Dressings are done with no-touch technique; penicillin cream is used (1000 units per gramme of lanoline wax base); firm local pressure is required; change of dressing is required only if the exudate is large or in certain areas, like the buttocks.

Early skin grafting is required when the full thickness of skin is lost. 67% of burns grafted on the day of admission remained uninfected in the Birmingham Burns Unit; only 16% of cases grafted at a later date were clean : Grafts take better when a mixture of polymixin and penicillin is employed than when penicillin alone is used.

Signs which indicate the use of skin grafts are full-thickness-skin-losses ; full-thickness-skin-loss, whether the skin is viable or not is estimated by testing the sensation to pin prick. Excision of skin is contraindicated in burns of the face, palm and sole.

Brachial neuritis :—A cervical rib was thought to be the cause some years ago ; scalenus anticus syndrome came into vogue and several operations were performed with this view. Herniation of the cervical intervertebral disc laterally is now understood to be the cause. Disc lesions are a frequent cause of brachial neuritis. Five % of brachial neuritis are caused by costo-brachial compression ; 10% of cases are caused by new growths. A disc lesion may exhibit three varieties of symptoms, of irritation or compression or paralysis. A lateral protrusion of the disc between the fifth and sixth cervical vertebræ affects the 6th cervical root and produces pain in the neck. Cervical disc lesions are treated by conservative methods of absolute rest to the head and neck. Patients can be treated in a semi-sitting position with a sand bag on either side. It is now recognised that protrusion of the disc may be present for a large number of years. Operation has to be considered after three months, if conservative treatment for this period fails.

Factors in the causation of talipes.—1. Abnormal differentiation of the individual tendons at or near their attachments in the foot during the period between the fifth and eighth week of gestation ; tendo achillis and other muscles exert a depressing influence.

2. Avitaminosis, insulin deficiency and various toxæmias during pregnancy have a place as possible causes. These factors point to a genetic factor.

Prevention.—Adequate diet, avoidance of all infectious drugs and toxæmias during the critical first two months of pregnancy ; they should not be given any form of radiation especially to the pelvic area during this period.

To prevent recurrence and skeletal deformity :—Transplantation of the insertion of the tendo achillis is done. The tendo achillis is exposed through an Z shaped incision and its medial and anterior attachment to the calcaneous should be freed bearing a small lateral attachment. The tendon should be split longitudinally so that the free tendonous flap can be transferred to the lateral side of the attached remnant and backed to the os calcis. Marked eversion and dorsiflexion become possible when the medial anterior attachment is freed ; inverted heel is thus remedied (Stele F. Stewart—Hawai).

For correction of adduction and forepart of the foot, incision is made over the base of the fifth metatarsal and peroneous brevis and longus. Remove all the accessory attachments of the tendon. This removes the adduction and supination of the forepart of the foot. Incision over the base of the first metatarsal is then made. Remove the medial and dorsal attachments of the tibialis anterior to the bone. The free end of the tendon is fastened in the plantar position.

Tibial torsion.—Normally an external rotation of 20° takes place in a normal tibia ; functional difficulties are seen when this

rotation fails to take place. Tibial torsion is any twisting of the tibia on its longitudinal axis which produces a change in alignment of the planes of motion of the knee and ankle joints.

Torsion is estimated by the following examination. The child sits in front of the examiner with the knees flexed to a right angle. The examiner places his left hand beneath the popliteal area and supports the patient's foot from pressure against the floor. The thumb of the right hand is placed on one malleolus and the index finger on the other malleolus.

By looking down the longitudinal axis of the tibia the number of degrees of torsion of the tibia is estimated. A normal adult tibia will show 20° of external torsion.

The infant has very little tibial torsion at birth. Correction of the deformity is made by the application of a light splint like Dennis-bronne splint; the foot being rotated out 20° and increased to 40° in severe cases. The length of the bar to separate the feet is 6" to prevent the development of knock-knee.

Congenital dislocation of hip:—Cases should be taken on hand much earlier than now. In cases treated after the first year a good percentage shows vascular changes in the epiphysis. Weight bearing should not be permitted till signs of revascularisation are well established.

Clinical symptoms of fibrous dysplasia of bone.—In the adult there may be extensive lesions in more than one bone without symptoms or serious impairment of function; solitary lesions are treated by curettage and packing with bone chips.

Treatment of Legg-Perthes Disease:—Bed-rest and traction constitute the ideal form of treatment in preference to amputation and non-weight bearing in patients who come for treatment before marked deformity occurs. This treatment is suitable for very young children and those with bilateral involvement.

Insulin and rheumatoid arthritis.—*Insulin* has been used in the treatment of rheumatoid arthritis; in small doses it improves metabolism and increases appetite; in conjunction with cortisone insulin is useful in sparing proteins and makes carbohydrates available at the cell phase; and insulin stimulates pituitary adrenal complex by means of hypoglycæmia.

When there is relapse, a second treatment with insulin is given. Those who do not respond to insulin are given a short course of ACTH and cortisone. A basic regime of rest and physiotherapy are essential.

Treatment with ACTH.—A good hypoglycæmic reaction is indicated clinically. The symptoms are flushing, sweating, weakness and drowsiness and the dose required varies from 16 to 120 units; the duration of treatment is about six weeks.

The degree of clinical response to insulin which corresponds very closely to the response of ACTH, suggests that hypoglycæmia may have a pituitary stimulating effect.

Insulin treatment is of temporary value. It is not of value in tiding over surgical and manipulative intervention.

The second course of treatment is less effective than the first.

ACTH increases the acid concentration and total acid output of the stomach to levels usually associated with duodenal ulceration. It also increases the promotion of pepsin. The use of this drug is contraindicated in duodenal ulcer.

ACTH has provided a method of providing pituitary secretion which influences the adrenal cortex. Cortisone provides a method of direct replacement of some of the adrenal cortical hormones. The use of these drugs requires great care. Several cases of duodenal-ulcer-perforation are reported from the use of ACTH. Duodenal ulcer cases with myocardial affections and cases with psychic disturbances should therefore, be excluded.

Symptoms of potassium depletion occur and so potassium chloride 2 to 4 gm. is given daily. There is disturbance of carbohydrate metabolism giving rise to hyperglycæmia with decrease of response to insulin. Cortisone inhibits the growth of granulation and fibrous tissues and retards wound healing. Excessive adrenal cortical effects are produced with psychological and mental changes. Cortisone and ACTH should not be given to tuberculosis patients or former tubercular patients. The other detailed effects are not noted here. Cortisone is used in a variety of conditions such as rheumatoid arthritis, acute rheumatic fever, skin conditions and locally in eye conditions. A maintenance dose is required. Several thousand cases have been treated during the last two years in America and cases have been under observation for seven years.

Treatment of acute osteomyelitis :—Absolute rest in a plaster shell with penicillin injections has prevented mortality and mutilating operations. Incision and drainage are required when a local abscess is formed. Small sequestra may form and have to be removed later on. Very thick periosteal thickening still occur ; pathological fractures have also been noticed. While penicillin treatment has prevented many complications, sound surgical principles like rest, timely incisions and removal of sequestra when formed, are required.

Treatment of tuberculous diseases of bones and joints.—Streptomycin has been found useful in cases with sinuses and cold abscesses. Cold abscesses get aborted and disappear quickly. In almost all clinics PAS is used in combination with streptomycin. This does not mean that the primary treatment of a tuberculous joint or bone by conservative means, of absolute rest for a prolonged period till healing is well established, can at all be ignored. In

my experience the time period of immobilisation is not shortened. There is no quick cure. Streptomycin and PAS are valuable adjuncts to the established treatment, in improving the general health, in controlling abscesses, and in allowing sinuses to heal. Paraplegia in spinal disease will take its own time in showing improvement.

Early surgical procedures of excision of tuberculous foci have not produced lasting good results except when the patient is looked after carefully under favourable environmental conditions.

Fixation operation on healed and convalescing cases in spine, hip, shoulder and wrist are satisfactory and have given enduring results.

Washerwoman's sprain:—In stenosing tendo-vaginitis at the radial styloid, treatment with rest is not indicated. Deep massage is essential. Patients should be encouraged to use the thumb and the fingers. Deep massage for three weeks is of great value.

Phemistar and Hauss's method:—*Correction of angular deformities as knock-knee*:—Efficient stapling of the distal femoral and proximal tibial epiphysis stops the elongation of bone at these epiphyses immediately and completely. This procedure is simple and the complications are minimal. When the staples are removed bone growth will continue at the normal rate. A wire may also be used.

An epiphyseal plate which has become thin as a result of stapling rapidly regains its former thickness after removal of the staples. Three-fourth inch long staples are used in children. 3/32 inch rods of 311m stainless steel, simple smooth wire staples are used earlier. Epiphyses fuse from two to six months after operation due to the stimulus of the operation, whether the staple is left *in situ* or not. Three staples are used on each side of the epiphysis. Growth will stop immediately. Previous to this, bone-shortening or bone-lengthening operations were used to equalise the length of limbs. These procedures were attended with complications.

The longest period for which the staples may be left is two years. Leaving them for a longer period than 2 years produces definite damage. Some leave it for 3 or 4 years. They do the operation at the age of 8 by the blind method.

Foot complaints:—Foot complaints in the growing period of children and adolescents should be treated only by conservative methods.

Myanesin is useful as a relaxant in spastic conditions of all kinds including acute low back pain, in addition to rest and traction. 30 to 50 mg. per kg. of body weight is the dose recommended.

Shortening in anterior poliomyelitis:—In anterior poliomyelitis a shortening of limb occurs. Age at onset and the amount of paralysis in the two lower extremities are the two great factors which produce shortening. Other factors like skin temperature, braces, and stabilisation operations are not of importance.

There is less inhibition of growth before the second year after the onset of disease. The inhibition is maximum from the second to the fifth year of the onset of disease; there is less after the fifth year. The shortening may be due to dysfunction. Staples are used in equalising the length in A.P.M. cases also.

Osteo-arthritis:—Spontaneous arrest never occurs. Pain diminishes sometimes as the deformed joint gets fixed: more often as subluxation occurs, a limited range of movement occurs and the symptoms become more disabling.

All parts of the joints are affected; the pathology is one of a degeneration and hyperplasia; the arthritis is due to a congenital or developmental defect or injury, ancient infections and diseases of epiphyses. When there is no predisposing cause, the condition is called primary and is due to ischæmic changes in the articulatory surface as head of the femur. There is a systemic factor occasionally and there is a great preponderance in the female sex.

Bone tumours.—(1) Benign and malignant or (2) Of osseous and non-osseous origin.

Those of osseous origin at the earliest period of inception have a single focus of origin and hence could be eradicated.

Tumours of non-osseous origin such as those involving bone-marrow and those involving bone from without by direct extension or metastases are often multi-centric; they rarely present a favourable opportunity for complete eradication and ultimate cure (excepting fibro-sarcoma).

Osteogenic sarcoma:—2/3 of the survivals of 5 years are of fibro-sarcoma or chondro-sarcoma type; of low grade malignancy histologically.

Angioma of bone (Geschichter of Copeland):—Twelve cases were studied by them, frequently in young adults; but children may also be affected. In the long bones multilocular areas of destruction expand the shell of bone in one direction to paper-like thinness.

The shaft is usually involved. They do not extend deeply into the medullary or cancellous spaces. In the skull and spine the rarefaction produced often has a honeycombed appearance and delicate radiating spicules of new bone may be formed. Hitizrot in 1916 curetted the upper end of the right humerus of a patient (a surgeon).

An angioma of the capillary type registered in the Registry No. 849 had rapid growth and soft consistency. It was treated by excision. An angioma of the femur (girl 17) healed with deep X-ray therapy. No recurrence occurred during 10 years.

TREATMENT:-Angiomas affecting the bone are essentially benign in character. They are radiosensitive lesions and cures may be effected by deep X-ray. In several cases curettage has been done with chemical or thermal cauterisation and the patients have been

cured. These were cured by irradiation alone. In four cases the lesions recurred and cure was effected by radical surgery. The fourth case in the oscalcis and a fifth in the upper humerus died with pulmonary metastasis. Local surgical removal or deep X-ray is today indicated for benign growths. Radical surgery is only for the rare malignant cases.

Synovial sarcoma:—All cases have been under 40 years of age. They involve regional lymph nodes and produce secondaries in the lungs. Cases reported as synovioma should be looked upon with great suspicion. The common sites of occurrence are popliteal space, foot, thigh and hand, hip, elbow and ankle. My own case of synovioma in the popliteal space recurred within 2 years after operation; they are not radiosensitive and require amputation.

Alkaline phosphatase:—In all bone diseases except those due to carcinoma of the prostate, it is only the alkaline phosphatase that is increased.

Paget's disease:—TREATMENT:—(1) Aluminium acetate therapy was used by Giformley and Hinchley for 12 patients. Eight cases followed over a period of six months showed subjective improvement. (2) Daily injections of 1 c. c. Parathormone showed symptomatic improvement. (3) Pteropterin (Lederle) daily intramuscular injections of 20 mg. for one week was used by Raphel Goldenberg in 6 cases; thereafter weekly injections were given two to three times; pain was less; sleeping and walking were improved; when treatment was stopped pain recurred; there was no demonstrable rœntgenographic change following pteropterin therapy. (4) Radiation therapy relieved bone-pain in many instances but should not be tried till all other measures have failed.

221, Thambu Chetty Street, G.T., Madras-1.

Fractures of the Dorsal and Lumbar Vertebræ

Baab and Howorth draw the following conclusions on the basis of a study of 125 cases of compression and posterior element fracture of the spine treated from the beginning, 33 late cases with residual symptoms and 30 cases treated with spinal fusion and followed up for over 11 years:—(1) Only 17 per cent of all compression fractures, including minimal ones treated conservatively are permanently disabling; (2) unreduced compression fractures have no higher symptom-rate than those that are reduced and collapsed or reduced and retained; (3) 94% of the reduced compression fractures collapse when treated with a hyperextension cast brace and exercises; (4) spinal fusion for patients having old compression fractures with persistent symptoms, gives overwhelmingly better results than does "*conservative*" treatment; (5) early spinal fusion gives better results than late spinal fusion; (6) spinal fusion allows the patient to return much sooner to heavy work; (7) moderate and severe fractures in labourers 41 to 60 years of age should have surgical consideration; and (8) all posterior element fractures in the lumbar area should be fused; (9) compression fracture of the spine is often more important as a joint injury than as a fracture and residual symptoms are due to damage to the joint and soft tissue.—(*J.A.M.A.*, 146, 2, 1951, pp. 97–99).

FILARIASIS OF THE SCROTUM *

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FILARIASIS has various manifestations in the human body. Ugly deformities, disabilities and chronic ill-health with acute exacerbations are common complaints in the community in which the disease is endemic. During the recent world war, filariasis was found to be a world problem. It is endemic in the Pacific Islands, the coastal countries of the continent of Asia right from China to Suez, the equatorial belt of Africa, the West Indies and the South American coast. It is estimated that one third of the world's population is infested with the filarial parasite. A relentless fight is going on against this disease, and it is hoped that it may be completely wiped out in course of time, by the application of the newer remedies. Here in Saurashtra, the infection is highest in the population of the coastal area. The Government of the State has lately been taking interest in this problem. It should also receive greater attention from the medical profession in Saurashtra. At our last medical conference held at Surat some papers on filariasis were read, but none of them dealt with filariasis of the scrotum. So I propose to present in this article my observations and findings on this aspect of the disease.

Next to filariasis of the legs—elephantiasis—the scrotum is the part most commonly affected. Stephens and Yorke who analysed 4712 cases, found that 38 per cent had filariasis of the scrotum and 57 per cent of the lower extremities.

Under the heading filariasis of the scrotum I include the following three main groups :—

GROUP I.—*Filariasis of the scrotal integuments* :—

(1) Cellulitis of the scrotum.
(2) Abscess formation.
(3) Lymph scrotum with lymphorrhœa.
(4) Elephantiasis of the scrotum.

GROUP II.—*Filariasis of the scrotal contents* :—Tunica vaginalis, testes and epididymis.

(1) Hydroceles, chyloceles and pyoceles.
(2) Orchitis—(*a*) acute, (*b*) chronic.
(3) Epididymo-orchitis, (*a*) acute, (*b*) chronic.

GROUP III.—*Filariasis of the cord* :—

(1) Acute funiculitis.
(2) Lymphangiectasis of the cord.
(3) Abscess formations in the cord.
(4) Thrombophlebitis of the veins of the pampiniform plexus.
(5) Pain along the cord.

* Read at the Provincial Medical Conference of I.M.A. at Bhavnagar on 6th May 1950.


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Several of these various manifestations of filariasis of the scrotum are difficult of diagnosis and intractable to treatment. In this paper therefore, I propose to lay stress on these two factors, while discussing the above named conditions. McKinley (1931) after examining 38 cases of acute filarial lymphangitis concluded that three types exist:—(1) Lymphangitis of bacterial origin; (2) lymphangitis of filarial origin; and (3) filarial lymphangitis with secondary bacterial infection.

I. Filariasis of the scrotal integuments.—1. *Cellulitis*:—The commonest cause of cellulitis of the scrotum is filarial infection. There is an acute onset starting with a localised lymphangitis or involving the whole of the scrotum with all the signs of acute inflammation. Constitutional disturbance is also fairly severe with fever and may prove fatal rising up to 103°F to 106°F; suppression of urine may follow acute filarial fever. The disease is ushered in with a severe rigor and sometimes vomiting. The scrotum rapidly swells in size. The rugosity of the scrotal skin disappears. The subcutaneous tissues are baggy with fluid but there is no thickening of the skin. If early treatment is not instituted many cases end up with sloughing of the scrotal integuments and exposure of both the testes.

Treatment of this condition is fairly easy in the early stages. The patient is put to bed. Penicillin is the drug of choice and must be given in adequate doses till symptoms subside. Where penicillin is not available, sulpha drugs may be used. The scrotum should never be allowed to hang in between the thighs because the weight will increase the discomfort and impair the circulation. It should be supported either on a broad sling of adhesive plaster drawn across the thighs or on a small narrow pillow kept in between the thighs. This will greatly reduce the pain and discomfort of the patient. Local applications should be of cool (not warm) lotions. Symptomatic and supportive therapy must also be administered. Urine must be examined to rule out diabetes mellitus.

If the disease is not arrested or if the patient comes late with patches of discolouration on the scrotal skin, multiple incisions must be made at once; otherwise the whole scrotal skin will slough off. If the patient comes still later with the major part of the scrotum gangrenous, the sloughs should be removed and attempts should be made to make the wound healthy as early as possible. Eusol compresses or azochloramid dressings are good local applications which rapidly cleanse the area. Once the testes get covered with healthy granulations skin-grafting should be done. Thiersch's grafts are difficult to keep in position in this place. A very normal looking scrotum can be formed by two broad pedicle grafts taken from the upper dorsal aspect of the thighs on both sides adjacent to the perineum. A third method of covering the testes with skin is to make subcutaneous pouches in the crural folds and to suture up the remnants of scrotal skin in the midline.

2. *Abscess formation*:—Abscess formation in the scrotum, due to filarial infection does not call for any detailed discussion. If the causative factor is kept in mind, filaricidal drugs may prevent recurrences. It is very rarely that the worm is found in the lesion. This is also the experience of Manson Bahr, and Stephens and Yorkes, Maxwell and Anderson. I think two factors are involved in the production of these abscesses. (1) Localisation of a spreading cellulitis; and (2) irritation due to a living, dying or dead worm.

3. *Lymph scrotum with lymphorrhoea*:—Lymphangiectasis with lymphorrhœa, though not so common as other filarial conditions of the scrotal integument is a condition which is intractable to any other treatment except complete scrotectomy. If the case is seen early and there are only a few lymph vesicles, general treatment of the disease may be useful. The patient is often so much disgusted with the continuous oozing that he insistently demands the operation. The oozing also affects his general health and he loses weight. Acton and Rao (1930) have recorded 9 cases of lymph scrotum—all after hydrocele operation. Four years ago, I did one scrotectomy for this condition. The æsthetic result was good and he has had neither repeated attacks of fever nor lymphorrhœa ever since. Thus, to my mind the best treatment for lymph-scrotum is total scrotectomy. Manson Bahr is however, against surgical interference because he thinks elephantism of the leg may follow such a procedure.

4. *Elephantiasis of the scrotum*:—The commonest result of filariasis of the scrotum is a thickening of the skin and subcutaneous tissues of the scrotum. This thickening may be enormous, affecting the whole scrotum and sometimes even the suprapubic region or may affect only a part of the scrotum. In the first category are included those *bizarre* swellings of the scrotum that reach below the knees of the patient and weigh several hundred pounds. The largest one on record weighed 224 pounds. Such results are due to many years of endurance on the part of the patient.

In some of these cases the mass assumes unbelievably huge proportions. The largest that I have come across in this part of our country had a circumference of 2¼ feet! One of my patients volunteered the information that the enlargement of the scrotum did not cause him much discomfort but actually increased his convenience as he found this to be a convenient table to support his account books —*viz.*, bulky *chopras*—while maintaining the accounts of his firm! But these bulks are nothing compared to what are found in equatorial Africa where the size sometimes reaches to such huge proportions that the human body appeared to be just an appendage to the vast tumor. Three stages may be observed in the development of filarial elephantism:—(1) Uniform swelling and thickening of subcutaneous tissues. The skin is still smooth. (2) Skin becomes coarse and

thickened. (3) Skin and subcutaneous tissues become greatly hypertrophied.

Besides increase in size, the following are also associated with elephantoid scrotum :

(1) Repeated attacks of inflammation resulting in cellulitis, localised abscesses or pyoceles. (2) Chronic ulcers and an eczematous condition of the scrotal skin. (3) Warty overgrowths on the skin. (4) The distance between the external urinary meatus and the preputial opening is increased to 12 inches or more according to the size of the tumor. The urine dribbles on the tumor and causes, excoriations of the skin all round. (5) Acute or chronic inguinal lymphadenitis and adenovarix or varicose groin glands. (6) Hydroceles. (7) Hernia. (8) Lymphorrhœa.

The dignosis is evident and the treatment is surgical. I would like to stress this point because I have seen patients being treated medically for years with no benefit. No amount of filaricidal drugs either new or old can ever reduce the size or cure elephantiasis of the scrotum. Surgical treatment means a complete removal of the scrotum. Even where the scrotum is partially affected I would insist on total scrotectomy, because partial scrotectomy almost always leads to recurrences. I shall now describe the plan I follow in performing total scrotectomy.

Total scrotectomy needs careful preoperative treatment. The general condition of these patients, is usually unsatisfactory, as recurrent inflammatory attacks and chronic ulcerations usually cause a high degree of secondary anæmia. This must be first treated. Any chronic lesion of the scrotal skin must be cleared up before surgery can be undertaken ; the patient should therefore, be admitted to the hospital at least a fortnight before the operation. For three days prior to the operation the scrotal skin is thoroughly cleansed, first with soap and water and then with turpentine, ether and rectified spirit one after the other, the scrotum being draped in sterilised towels at the end of each treatment. Other preoperative measures are the same as for any other major operation. Spinal anæsthesia would be ideal if the blood pressure is normal. 1·8 c.c. of 5% stovain or 15 to 20 mg. of anæthain would induce sufficient anæsthesia to last for about 1½ to 2 hours, which would be enough even for the largest tumor, provided the operative plan indicated below is followed. It is a good idea to have a blood transfusion during the operation, for the blood loss from the dilated veins in the tumor may be considerable. Besides the surgeon and the first assistant two more assistants are essential to manipulate the swelling during the operation.

Where such assistance is not available and the tumors are very large and heavy, an ingenious method is suggested by a surgeon working in equatorial Africa. He has a pulley fixed up in

the ceiling above the operation table with a wire passing over the pulley. At one end of the wire is a hook which can be fixed to the scrotal swelling. The other end is connected to a foot lever which the surgeon manipulates with his foot during the operation wherever he wishes to lift the tumor. In a moderate sized swelling no such elaborate apparatus would be necessary. After applying 1% iodine in rectified spirit to the operative area and its surroundings I get the tumor lifted up and placed on the patient's thighs which are approximated. After the patient is properly draped in sterilized sheets, I start the operation with a semilunar incision in the crease of venus between the two anterior superior spines. The length of this incision depends upon the enlargement of the inguinal nodes on one or both sides. The average length would be about 6 inches.

I then start dissecting the glands from the lateral angles of the incision and work towards the midline, removing also any elephantoid tissue that may be present in the suprapubic region. Once this dissection is over, I make two vertical incisions on either side over the external inguinal rings, starting from the semilunar incision and joining down on the scrotum for a length of two or three inches according to the size of the swelling. Deepening of these incisions will at once expose the spermatic cords, which can be followed down in the mass by blunt dissection with fingers till one reaches the testes. In the majority of cases, moderate sized hydroceles are present. These are delivered out of the vertical incisions and the sacs are opened up and everted. The testes are wrapped up, in moist gauze and kept aside. Dissection now proceeds by elevating the skin flap that is formed between the two vertical incisions on either side and the middle two-thirds of the original semilunar incision. Going a little deeper, one comes across the suspensory ligament of the penis and the root of the penis. The body of the penis can now be separated easily from the elephantoid mass by blunt dissection. One can reach up to the tip of the glans penis and palpate it through the everted prepuce. It will be surprising to see that amidst the swollen mass, the preputial skin retains its normal thinness and elasticity. How this occurs, I can't say. The prepuce can be cut across and the whole penis is now completely free. All that now remains to be done, is to detach the elephantoid mass from the perineum by making two sweeping incisions at the perineo-scrotal junction on either side. These incisions start at the middle of the vertical incisions and end up by joining each other at the mid-point of the perineum. A few touches of the knife will separate the mass from the perineum. The two assistants who were so far manipulating the mass remove it on complete excision into a receptacle kept handy. They next start preparing the thigh on their side for taking skin-grafts. The surgeon and the first assistant suture up the wound which assumes a T-shape on comple-

tion. A rubber drainage tube is put in the lower part of the vertical limb of the T which is in the perineum. The horizontal limb of the T is the semilunar incision with which the dissection was started. The penis projects with its shinless body from the upper part of the vertical limb. By the time the surgeon finishes the suturing, the two assistants have several Thiersch's grafts ready in a bowl containing normal saline. With these grafts, the surgeon now covers the denuded body of the penis. A firm dressing of paraffinised gauze is then applied to the penis and kept in position by adhesive plaster. This dressing is not opened for eight or nine days by which time the grafts would have taken. The rest of the dressing follows the usual procedure. The dressing is changed on the third post-operative day, when the drainage tube is removed. The sutures are removed on the ninth day. There is nothing special in the post-operative treatment.

The following advantages are claimed for this method of total scrotectomy :—(1) *Minimum bleeding*:—The tumour mass itself is not incised anywhere else except to the extent of the vertical incisions which are hardly 2 or 3 inches in length. The large thin-walled veins are found in the body of the mass where they are difficult to catch because of the blubber-like elephantoid tissue in which they are embedded. There is no need to tie a tourniquet at the upper part of the scrotum as the vessels here are ligatured first.

(2) It is easy to find the testes and the penis by these incisions. In the orthodox method, much time is wasted and much dissection has to be done in tracing these structures. And there is the fear of injuring or damaging them in the process.

(3) Total scrotectomy can be done in the shortest possible time by this method.

(4) Convalescence is also short because of the skin-grafting performed at the same sitting. The patient may be able to leave the hospital in 15 days.

II. Filariasis of the scrotal contents.—1. Many of the so-called idiopathic hydroceles in our part of the country are filarial in origin. There may be a history of fever with rigor accompained by inflammatory signs in the scrotum. But in some cases clinical examination does not reveal any clue which may lead one to suspect the cause of the hydrocele. Even the fluid contained in it may resemble the text-book-picture of the so-called idiopathic primary hydrocele. But if such a fluid is examined under the microscope, one would see microfilariæ in it. Thus chylous fluid is not necessary to diagnose a case as that of hydrocele due to filariasis of the scrotum.

Pyoceles:—Filarial hydroceles are very prone to infection and recurrent inflammatory attacks in a case of hydrocele are due

to filarial infection. In the early stages, the inflammatory reaction can be controlled by aspirating the fluid and instilling penicillin solution containing 500 units per c.c. The quantity of penicillin solution instilled will depend upon the fluid content of swelling. Parenteral penicillin should also be administered if the attack is at all severe.

2. *Orchitis: acute and chronic*:–Epididymo-orchitis both acute and chronic due to filariasis is common. Recurrent attacks of pain and swelling of the epididymis and the testes are usually suggestive of a filarial origin. And because this condition is not kept in mind, many cases are wrongly diagnosed as due to gonorrhœa. It is my impression that in Sourashtra filarial epididymo-orchitis is more common than gonorrhœal. There are some patients who present themselves with no other complaint except that of nodules in the epididymis. Low points out that a favourite site of the adult filariæ is the epididymis.

Nodules in the epididymis are the result of the above mentioned conditions. These nodules may be very painful, particularly in neurasthenic subjects or may be just tender on pressure; they may be single or multiple and may vary in size from that of a pea to that of an arecanut. Most of them are situated in the globus major. The treatment of acute and chronic epididymo-orchitis should be by penicillin and the sulpha group of drugs. The nodules when painful, should be excised. Injections of novocain may give temporary relief.

III. Filariasis of the cord.—1. *Acute funiculitis*:—This condition is very common where filariasis is endemic. I think the so called endemic funiculitis is almost certainly filarial in origin. It is important to differentiate acute funiculitis from strangulated hernia. To stress how important and difficult this is, I will briefly describe three cases that I treated recently.

The first one was an old man of sixty, with a history of a sudden appearance of an acute painful swelling in the right inguino-scrotal region. Next day, vomiting and distention of the abdomen started. I saw him on the third day of the disease, when he was suffering from vomiting, moderate distention of the abdomen, acute pain in the swelling and severe constipation. There was an elongated tender swelling in the right inguinal region with a tense rounded lower margin just reaching the testes. Except for the fact that the patient had a temperature of 102°F the clinical picture was that of a case of strangulated hernia. His blood count showed a leucocytosis of 15000. On a tentative diagnosis of acute funiculitis he was put on penicillin therapy, to which he did not respond. In the next 48 hours he became worse with more vomiting and distention, enemas having no effect. As the patient's life would be endangered if the

diagnosis were wrong, I made an exploratory incision in the inguino-scrotal area and found an immensely thickened cord which was about 1½ inches in diameter with a lemon sized globus major, both acutely inflamed. The incision was closed taking care not to put sutures under tension in the aponeurosis. It is interesting to know that the pain disappeared soon after the operation. The patient made an uneventful recovery and left the hospital after 12 days.

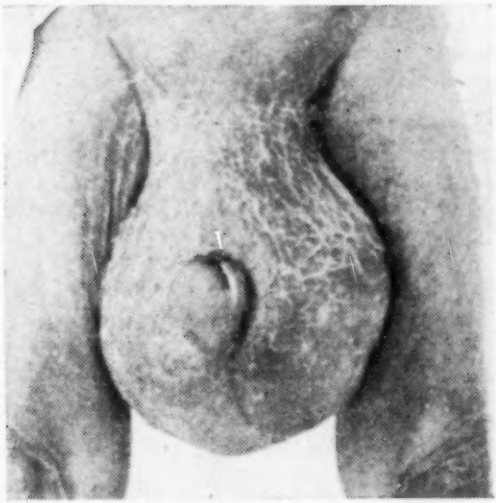

FIG. 1.—Patient aged 65 years. Before operation.

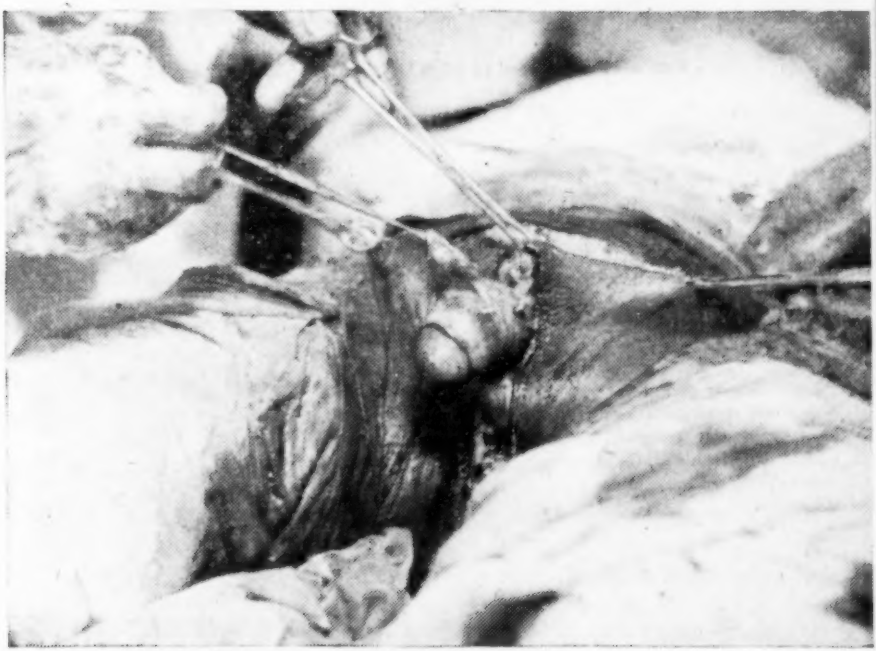

FIG. 2.—Patient aged 65 years. Operation described in the text (before suturing.)

FIG. 3.—Patient aged 65 years. The mass that was removed.

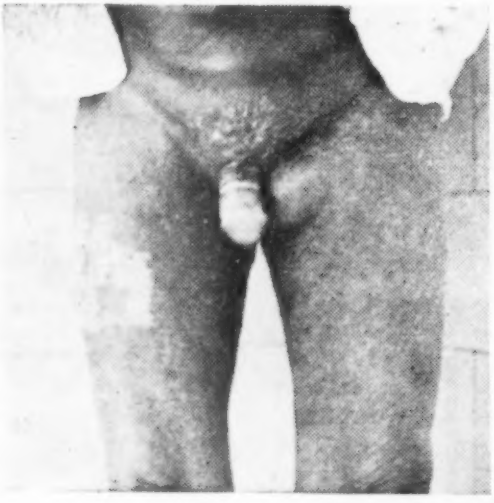

FIG. 4.—Patient aged 65 years. After operation.

Rt. sided orchidectomy was done because of diseased and enlarged testis. Thiersch's grafts were taken from the same thigh.

The second case was a similar one but with very little fever. Blood showed a leucocytosis of 20,000. He had already been diagnosed as a case of strangulated hernia and unsuccessful but prolonged taxis had also been attempted by others. I diagnosed his case as acute funiculitis and put him on penicillin which brought the condition under control. The third case came to the hospital three days after the onset of the disease, with fever ranging from 100°F. to 101°F. The pulse was about 90. Leucocytosis was 35000.

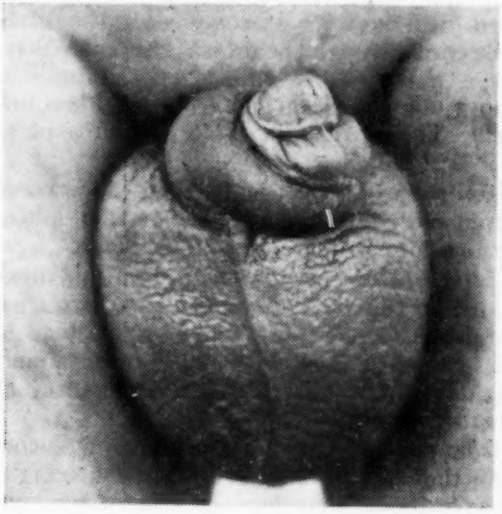

FIG. 1.—Patient, aged 13 years. Before operation.

There was rigidity in the lower half of the abdomen more marked on the right side on which the inguino-scrotal swelling was seen. He was also put on penicillin, but his condition did not improve; so on the second day after admission he was operated. It was found to be a case of strangulated hernia with gangrenous intestines. He was not in a condition to stand anastomosis, hence Paul's tubes were put in. He died three days after the operation.

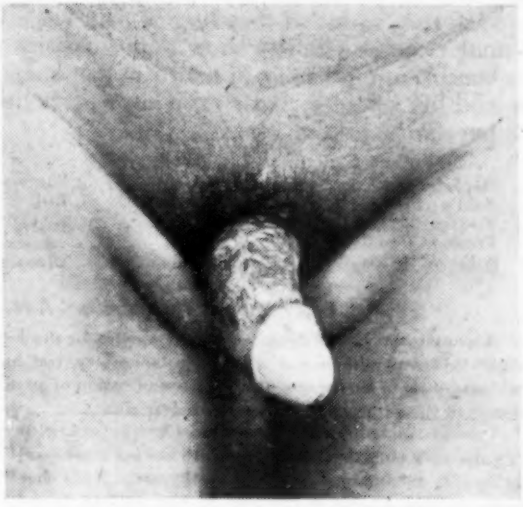

FIG. 2.—Patient aged 13 years. After operation.

2. *Lymphangiectesis of the cord*:—Dilatation of the lymphatics of the cord is met with in

Sourashtra while operating on cases of hernia. Sometimes the dilated lymphatic vessel is so big as to be mistaken for the hernial sac. When it is opened, some lymph comes out and it does not communicate with the general peritoneal cavity. In some cases the dilated lymphatic accompanies the cord through the internal abdominal ring in the abdomen; such a patient will show slight impulse on coughing as well and the whole condition may be mistaken for a small hernia adeno-varix. The treatment is by excision of the dilated lymphatics.

3. *Abscess formation* in the cord is usually the result of acute funiculitis that had not resolved completely. This is a rare phenomenon. Treatment is by incision, evacuation and drainage.

4. *Thrombosis of the veins* of the pampiniform plexus causes a swelling in the cord at the upper part of the scrotum and may be unilateral or bilateral. The swelling which may be as big as a lemon, is usually firm in consistency with small hard nodules scattered in it. It is slightly tender on pressure and causes the patient much worry. Treatment is by excision.

5. *Pain along the cord*:—There are some patients who come for no other complaint than that of pain along the cord radiating up to or into the testes. The severity of pain depends upon the psychic make-up of the patient. On examination the only abnormality seen is usually the presence of small nodules in the cord with a bulkiness and a slight matting thereof. This condition should be carefully differentiated from tuberculosis of the cord and the epididymis. In tuberculosis, the matting is more extensive and the nodules are on the vas, the so-called beading of the vas; the epididymis and the seminal vesicles will also show abnormalities. It is difficult to treat this condition especially in neurotic persons. But if the nodules are few and big enough, their excision will help both from the curative and psychic points of view.

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Early Venous Thrombosis: A New Sign

A new clinical sign is described by Alessandro for the detection of early venous thrombosis. So far no reliable and practicable laboratory test has been evolved to detect the insidious onset of this tragic disabling complication of so many conditions allotted as the concern of the surgeon, physician or obstetrician.

Thrombo-embolism may be detected by (1) pain with or without local tenderness; (2) pain on dorsiflexion of the foot with the leg extended (Homan's Sign); (3) swelling of the leg; (4) unexplained pyrexia or tachycardia; (5) chest pain with or without hæmoptysis; (6) the advent of distress in the patient "something is going to happen"; (7) local cyanosis; (8) temperature differences in the legs; and (9) the sentinel veins of Pratt.

To these may be added a new sign: Diminution or loss of the femoral pulse in the lower extremities. It occurs in thrombophlebitis and in phlebothrombosis:—(*J.A.M.A.*, 29-12-1951).

SURGICAL LESIONS OF THE SPINAL CORD*

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THE surgery of the spinal cord, like the surgery of the brain, has advanced only recently, because of its deep location and its intricate function. Since the days when Mejendie and Bell proved that the anterior nerve roots were motor and the posterior sensory, our knowledge of the structure and function of the spinal cord has advanced so considerably that today we are able to make accurate diagnosis of many spinal cord lesions and are able to perform accurate surgery on them.

Anatomically, I would like to point out, the spinal cord—only as thick as the little finger—has got concentrated in it all the tracts, motor and sensory, leading to and from the neck, the trunk and the extremities. Its structure is a marvel of nature. Such a concentration of important tracts, explains the fact that small lesions of the spinal cord can cause extensive damages. Without going into technical details or the more intricate physiology, I will attempt to place before you certain important lesions of the spinal cord, their diagnosis and treatment.

Taking the congenital lesions first.—When there is a defect in the vertebral arches, the membranes covering the spinal cord, tend to herniate through this defect. These lesions occur commonly in the lumbar, then the cervical and the thoracic regions. When only the membranes herniate out, it is called a meningocele and when the lesion includes nerve elements, it is known as a meningomyelocele. In the latter case, nervous disturbances like incontinence of urine and fæces, and clubfoot are quite often associated with the lesion. The diagnosis is apparent in these lesions. The chief facts to be noted are :—(*a*) whether the skin covering is healthy or in danger of rupture ; (*b*) whether the sac is so big as to give way ; and (*c*) whether there are associated extensive nervous abnormalities.

The principles of treatment are :—(*a*) To delay the operative treatment, unless otherwise indicated, till the infant is old enough to stand the operation ; and (*b*) not to operate when there is marked neurological deficit, except when there is a risk to life.

A simple meningocele or meningomyelocele without ulceration is better left alone till the child is a year old. Early ulceration can be treated with either penicillin or alcohol dressings. The danger of the sac bursting can be minimised by aspirating the sac away from the midline. If there is a great risk of meningitis, or if the sac is very big, operation is urgently indicated. At

* Paper read at the South Indian Provincial Medical Conference, held at Kozhicode in September 1951.

operation, the defect is treated like a hernia except that when nerve elements are also herniating, they must all be very carefully preserved. The defect in the vertebral arches must be closed by a strong layer of fascia reflected from the adjacent spinal muscles.

We will deal next with lesions that cause pressure on the spinal cord. These lesions are the most amenable to surgery and give dramatic and gratifying results. Pressure on the cord can be proved by a lumbar puncture. Normally during a lumbar puncture pressure on the jugular veins increases the flow of cerebrospinal fluid. If there is any pressure on the spinal cord causing obstruction to the cerebrospinal fluid, then jugular-venous-pressure-rise will not cause increased flow of CSF. This test is called Quickenstedt's test. The increased flow of CSF can also be accurately measured by attaching a manometer to the lumbar puncture needle. In addition to the Quickenstedt's test, a rise in the protein content of the CSF without a rise in the cell count means an obstruction. When these two are present, a diagnosis of obstruction of the spinal canal can be safely made. By a neurologicai examination, the level of the obstruction can be made out. This can later be confirmed by performing a cisterna magna puncture and putting in a radio-opaque substance. This substance is held up at the level of the lesion as shown by the X-rays and gives one the exact site for surgery. Such pressure-effects on the spinal cord can be caused by many lesions.

Fracture of the vertebræ is one of them. These are common civilian injuries, and are often associated with injuries to the cord itself. This injury varies from simple concussion with transient paralysis to complete irreparable damage to the spinal cord. At the highest level such injuries are fatal. The treatment in the initial stages is the treatment of the fracture, with prevention of bedsores and attention to bladder function. But there are certain cases where the neurological lesion improves a little and becomes stationary or retrogresses. Usually such a stage is reached in two to three months, but it may take longer. In such cases one suspects a pressure-effect on the spinal cord. In other words, if at the end of three months after injury, the paralysis is stationary or retrogresses, pressure-effect must be excluded. This is done by the tests mentioned earlier and if there is pressure, it can be relieved by surgery. A laminectomy is done and a decompression is effected. In the last 8 months four such cases were treated in the neurosurgical unit of the Government General Hospital, Madras with gratifying results. One of these P., aged 35, fell down from a tree 30 feet high, three months before admission. On falling, he fractured his spine and had paraplegia. But this cleared in a month and he was left with dribbling of urine and anæsthesia over the inner side of the thighs, the perineum and the scrotum ; investigations proved that he had a block at the LI

level. After laminectomy he began passing urine once in 4 or 5 hours, much to his and his neighbours, relief.

Tumours of the spinal cord.—Only recently was the time when every paraplegia was diagnosed as syphilitic and the patients were left to the tender mercies of iodides and bismuth. But tumours of the spinal cord are common and a man with syphilis has as much right to get a tumour of the spinal cord as one without syphilis. Diagnosis is not difficult. If a patient gets a slow but steady onset of paralysis (sensory or motor) of his extremities, a spinal cord tumour must be suspected. It must also be strongly suspected when the patient has an inexplicable pain and which corresponds to a nerve root. A neurological examination is made and the diagnosis can be surmised. But, as mentioned earlier, lumbar puncture must be done to find out if there is any obstruction to the CSF, which will confirm the diagnosis of a tumour. In other words, every patient with a slow onset of paralysis of extremities must have a lumbar puncture done. This will give the diagnosis in most cases. It is being stressed here that the possibility of a spinal cord tumour must be borne in mind and excluded in all cases of paralysis. If this is done, many weary months of a paralysed patient's life will be saved.

Patient M., gradually began to lose power in his lower limbs, the right one first and then the left. In addition, the lower limbs gradually became numb. Since 3 years he was bedridden. Massages and injections had been tried without benefit. He was referred to the neurosurgical unit. A lumbar puncture done showed 300 mg. of protein and evidence of a complete block in the spinal subarachnoid space. Lipiodol X-rays showed a block at the thoracic ten level. He was operated and an extradural neurofibroma was removed. The patient walked after the operation, after having been in bed for three years. I leave it to you to imagine his happiness.

The other common lesion is also due to pressure-effect. Sciatica is pain along the sciatic nerve roots and can be caused by compression of the nerve roots by a *herniated intervertebral disc*. The clinical picture is fairly clear. An otherwise healthy man strains his back and gets a sciatic pain straightaway or he gets a pain low in the back which later becomes a sciatica. On examination of the back, there is a deformity—usually a scoliosis with spasm of the back muscles. Lying down, the patient cannot lift his leg after straightening it. He may have some numbness over the foot or the loss of an ankle jerk. A clinical diagnosis of a herniated nucleus pulposus can safely be made in such cases. Conservative therapy is first tried with the patient lying flat on his back for four to six weeks, followed by graduated exercises. In intractable cases, the herniated disc can be removed by removing half a lamina. This gives good relief.

Herniation of the intervertebral disc may also occur at the cervical or thoracic level. In the former case, it may lead to an intractable type of brachial neuritis. In either site, it might simulate a tumour. There are other surgical procedures on the spinal cord, like division of the pain-conducting-tract in intractable pain *i.e.*, cordotomy; or division of the pyramidal tract in severe athetosis. I will simply mention them here.

Lastly in the treatment of spinal cord injuries and diseases, one cannot stress the part played by special centres of treatment. In all civilised countries, there are special centres where patients with paraplegia are kept and treated. A lone patient with paraplegia either in his house or in a general surgical ward improves only very slowly if at all. People walking around him are on their feet. But he, though healthy in mind and fit otherwise, has to be bedridden. Psychologically he is in the dumps. Unless he is a very strong person, he goes downhill. But on the other hand, when the patients are kept together, nursing becomes much easier. One patient sees another who is more ill than himself and feels somewhat relieved that he is not after all so badly off. In addition, he sees others who came before him and who are helped to walk and move about. The inducement to get better is tremendous and he makes strenuous efforts and improves. In these centres, they can be taught in addition bladder and bowel control, rehabilitation exercises and most important of all, some occupation. Thus the paraplegics begin to feel that they too are useful members of society, and that they are not just cast-aways—a burden to their relatives, to themselves and to society in general. May we not hope that we in our state will also be able to achieve similar results?

Replying to the points raised in the discussion that followed, the speaker said :—Though there was some difference of opinion, most people held that radio-opaque oil in the subarachnoid space did not cause serious symptoms. But at present there were a number of substances that are more innocuous and that can be introduced in greater quantities. Suprapubic cystotomy was only a last resort in the treatment of bladder disturbances in spinal cord lesions. With proper care and attention in the paraplegic centres the prognosis of complete paraplegia need not be so hopeless as some thought.

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P.A.S. Therapy in Intestinal Tuberculosis

Kallaqvist treated 22 cases of secondary intestinal tuberculosis which were radiologically verified, with P.A.S.; the daily dose was 9·8 gms. given after meals in divided doses and the treatment was given for 3 months or longer. Side effects were diarrhœa (controlled by opium) and nausea and vomiting in a few cases (controlled by antacids). Complete (X-ray) intestinal regression was obtained in 10 cases and nearly complete in one case. Seven cases showed considerable regression. Of 4 cases in which there was no X-ray follow-up, one is symptom-free and 3 are dead. After a period of 16 months from starting the P.A.S treatment, 13 were entirely symptom-free, 3 had mild abdominal discomfort, and 5 were dead. In all the five fatal cases, (one of which was due to acute monocytic leukemia) subjective improvement was noted following the treatment with PAS. (*Am. Rev. Tuberculosis*, 61. 5, 621-642, 1951).

THE DIAGNOSIS OF ENLARGED THYMUS IN CHILDREN*

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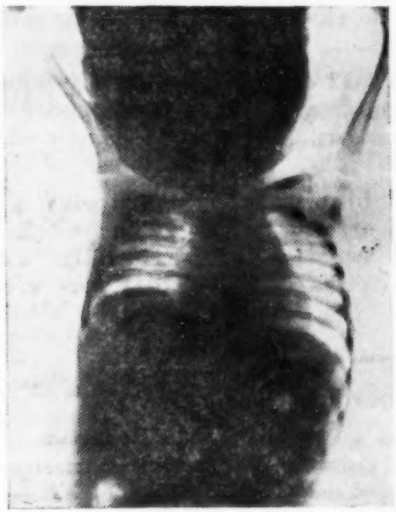
ENLARGED thymus causes thymic asthma (Kopp's asthma) and may be associated with status lymphaticus, which is being studied in detail in modern times. Whether status lymphaticus exists or not, sudden deaths in flabby children owing to trivial causes or as anæsthetic risks occur and probably are due to an anaphylactic state caused by the release of sensitising proteins arising from necrosis of lymphoid follicles.

Thymic asthma is a rare condition evidenced by dyspnœa and cyanosis; clinically enlargement of thymus may be detected by impaired resonance over and on either side of the manubrium sterni. Antero-posterior and lateral X-ray views of the chest may reveal a shadow above the heart.

Status lymphaticus is characterised by an enlarged thymus and spleen and a generalised lymphoid hyperplasia. The thymus may weigh even 50 grams (normal being only 25 grams.) Sudden death and increased risk from anæsthesia, and sudden syncopal attacks particularly after baths are risks attendant upon lymphatism.



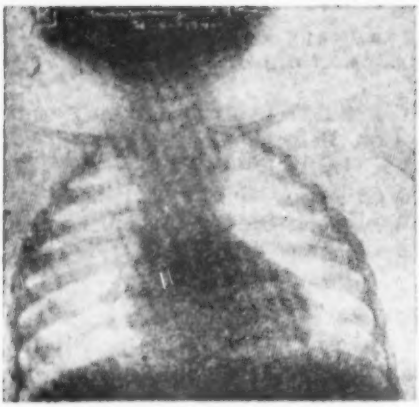
AP X-rays picture of the chest of a boy with Cardiomegalia. Clinical manifestations simulate thymic enlargement.

Treatment of thymic enlargement consists in the use of radium or deep X-rays to the thymic region.

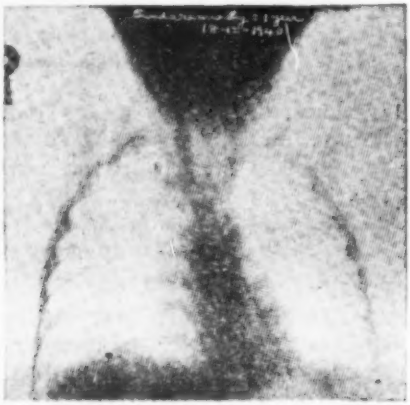
Recently the writer came across a few children with a history of syncopal attacks and with respiratory distress and cyanosis spontaneous or induced by baths; routine examination of the chest by X-rays revealed large cardiac shadows in them. The condition is also known now as familial cardiomegalia.

The following account gives particulars of three children diagnosed as enlarged thymus when the presenting symptoms were suggestive.

* Specially contributed to THE ANTISEPTIC.



X-rays chest AP. (M).



X-rays chest AP. (S)

Note the large supracardiac shadow in the pictures.

(1) A boy aged 2 years (21-5-1940). Inspiratory and expiratory stridor and cyanosis present. .Clubbing of finger and toe nails present. Pulse 140 per minute. A harsh systolic murmur heard internal to nipple—Congenital morbus cardis (?) Liver ½" enlarged. X-rays chest :—(M) A supracardiac shadow seen in the superior mediastinum.

(2) A boy, 1 year old. (18-12-1940). Fits and dyspnœa. Fever 100°F. to 102°F. Lumbar puncture done and CSF normal. X-rays chest:—A supracardiac shadow seen in the superior mediastinum. (S).

(3) A girl of 1 year (1951) subject to syncopal attacks and sustained every time by injections of nikethamide. X-rays chest showed a large supracardiac shadow. Treated successfully with radium exposures. The child is free from syncopal attacks after the treatment.

Dangers in Careless Removal of Rubber Gloves

One of the reasons for which rubber gloves are worn is protection of the examiner or operating surgeon and attending personnel against infection when infectious material has to be touched and handled. When gloves are removed carelessly, infectious material is liable to get scattered on to the clothing of the examiner, and of the patient and on to the floor and furnishings. Before a used glove is removed it should be washed under running tap water or a basin of clean water (placed in a sink) and then removed slowly and carefully over the sink. The hand should then be washed at once.—(*Ned. Tijdschr. Genesk.*, Amsterdam, Vol. 94 : 3769.)

EXTRA-RENAL ACTION OF DIURETICS*

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THERE is general acceptance of the view that urine formation begins in the glomerular capillary tufts as a filtrate from the plasma. The process is a passive ultra-filtration of a part of the plasma at the glomerular tufts. The force responsible for the filtration is the algebraic sum of the hydrostatic, oncotic and intra-capsular pressures. The filtrate that is formed in large volumes, contains all the crystalloids in the same concentration as in plasma. During the passage through the renal tubules about 99 per cent. of the filtered water and salts as also nearly all the other essential constituents are re-absorbed. The products un-absorbed along with the substances actively eliminated by the tubules are concentrated in a relatively small volume of the urine output either by increasing the rate of glomerular filtration or decreasing tubular reabsorption, the latter process being more effective in inducing a greater net loss of fluid from the body. Apart from the renal modes of action of diuretics, extra-renal mechanism would also appear to play a significant role in inducing the full diuretic response to some diuretics. They may act on the cardiovascular system to improve circulatory dynamics or act peripherally on the tissues to mobilise salt and water from the cellular and extra-cellular sites. This article deals with this latter action of diuretics—*viz.*, the peripheral or tissue action. There is evidence to show that xanthine and mercurial diuretics owe part of their action to the mobilisation of fluid from the tissues. The changes in the chloride content of the blood following the administration of certain diuretics, form the subject of our present investigation.

Procedure.—Curtis (1929) reported an increase in plasma chlorides immediately following the administration of aminophylline. The procedure adopted in the present inquiry was to observe the changes in the chloride content of the blood at intervals for a period of two hours subsequent to the administration of representative members of the different groups of diuretics. Thus, aminophylline, caffeine, sodium benzoate and diuretin were used out of the xanthine diuretics, mersalyl was used to represent the mercurials and urea and glucose were selected from among the osmotic diuretics. Dogs were used in all the experiments. The experimental animal was weighed and a sample of blood was withdrawn from its vein for the estimation of chlorides *before* the administration of the drug. The drugs were injected intravenously at a slow rate to avoid any untoward effects. Samples of blood were taken at intervals of

* Specially contributed to THE ANTISEPTIC.

5 minutes, 1 hour, and 2 hours and the chloride content of the samples was estimated by the Whitehorn's method. The results of observations are tabulated below :

Drug used and quantity injected.	Mg. of drug per kg. of body weight	Chloride content of blood per 100 c.c.			
		Before injection	After 5 Mts.	After 1 hr.	After 2 hrs.
1. Aminophylline 2 c.c. of 2·5 % solution.	16	760	860	840	860
2. 0·2 c.c. of injection Mersalyl B.P.	3·6 of Mersalyl and 1·8 of Theophylline.	790	840	860	820
3. 0·5 c.c. of Caffeine sodium benzoate 25 %.	9·2	850	840	810	810
4. 2 c.c. of Diuretin 2% solution.	4·6	840	820	830	840
5. Urea 0·5 c.c. of 2% solution.		800	790	770	800
6. Glucose 10 c.c. of 5% solution.		840	820	820	840

Discussion.—Peripheral action of diuretics may be of two types :—(1) The attraction of water from tissues with consequent hydræmic plethora, leading to increased filtration in the renal glomeruli ; and (2) mobilisation of chlorides from tissues leading to an increase in the non-colloid content of plasma. While interpreting the results obtained by investigating the latter type of action, it should be noted that mobilisation of water from tissues without transference of salts (chlorides) should produce a temporary reduction in the chloride content of the blood. The results recorded above, indicate that after aminophylline administration, there is an increase in the chloride content which is apparent within five minutes and is continued for two hours. This finding not only corroborates the evidence of Curtis but also shows that the increase is not only immediate but also sustained for at least two hours. Mersalyl also causes an increase in the chloride content. It should however, be taken in to account that Injectio mersalyli (B.P.) contains also theophylline and the effect noted might be due partly to this drug. Caffeine sodium benzoate and diuretin give different responses. In both, a diminution of the chloride content is seen after injection, which is prolonged up to two hours, in the case of caffeine, while in the case of theobromine (diuretin) the chloride content is restored to normal within two hours after the fall. This shows that so far as the chloride mobilisation is concerned, all xanthine diuretics do not behave in the same manner. Theophylline alone seems to produce this effect and

this is probably responsible for the greater diuretic action of this drug. An appreciable loss of fluid by renal methods without a corresponding increase in the loss of chlorides, can produce a relative increase in the chloride content of the blood. That this is not the sole reason for the increase noted with theophylline (aminophylline) is shown by the occurrence of actual reduction of chlorides seen with caffeine and theobromine (Diuretin), which also exhibit renal methods of diuretic action. The reduction in the chloride content seen after the administration of caffeine and theobromine derivatives may be due to the mobilisation of water from the tissues into the blood. Urea and glucose are also found to produce a reduction in chlorides, which is maintained for an hour.

Summary.—1. The renal and extra-renal actions of six different diuretics are reviewed.

2. Peripheral or tissue action is an important extra-renal action exhibited by some diuretics.

3. This peripheral action occurs mostly by a mobilisation of fluid from tissues into the blood, enhanced in some cases by a transference of chlorides in the same direction.

4. Estimation of blood chlorides at intervals for a period of three hours following the intravenous administration of a diuretic would hold in the comparative evaluation of their extra-renal actions.

5. The observation of Curtis that theophylline increases the chloride content of the blood is confirmed. This action is shown to be prolonged for at least two hours. Other xanthine diuretics do not exhibit this action and this explains partly at any rate, the greater over-all diuretic effect of theophylline.

6. The peripheral action of caffeine and theobromine appears to be due to the mobilisation of water from tissues which causes a temporary reduction in the chloride content.

7. Mercurial compounds also exhibit the peripheral action of mobilisation of chlorides from the tissues.

Acknowledgement.—We are thankful to Mr. K. M. Shah, (B. Pharm.) for rendering technical assistance.

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Terramycin for Infants and Children

Wolman and Holzel of the Manchester University tried the use of terramycin in various infections of infancy and early childhood in 60 children, no other therapy was given. The dose of terramycin used was 50 mg. per pound (450 g.) of body weight. 34 out of 35 patients with pneumonia responded promptly within 24 hours in most cases. 10 with upper respiratory tract infections, six with tonsillitis and 3 with pyuria showed a dramatic response. 11 out of 12 children with purulent conjunctivitis rapidly responded to the drug. There were no toxic reactions. As it is possible to use it in the form of an elixir, it is valuable in paediatric practice.—(*Br. Med. Jour.*, 23-2-'52).

INFANTILE HEPATIC CIRRHOSIS*

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DEFINITION :—It is an inflammatory disease in which the parenchymatous cells of the liver degenerate, accompanied by fibrosis, spreading from the portal spaces, resulting in the lobules becoming enclosed.

AETIOLOGY AND PATHOGENESIS :— This malady begins usually in infancy and early childhood between the ages, ranging from six months to 3 or 4 years and is more common in boys than in girls. It occurs more commonly in the orthodox vegetarian (Hindus) than in non-vegetarians. Sometimes we find it in several members of the same family (hereditary).

The ætiological factor in this disease was once believed to be alcohol, but has since been shown by researches to be a deficiency of some of the essential amino-acids and vitamins in the diet. Toxæmia produced by infective fevers *e.g.*, gastro-intestinal disturbances as well as subnormal states of health, injure the hepatic cells and weaken the detoxicating function of the liver. In the absence of high grade proteins, unsuitable and poor articles of diet are consumed to meet the needs of the body and to repair the wear and tear constantly going on in every cell of our body.

Protein depletion of the hepatic cells exposes it to the mechanism of fatty infiltration of the liver. (This occurs usually in the interim period, when a soft fatty liver can be felt below the right costal margin). This fatty infiltration is replaced in course of time by a connective tissue hyperplasia and fibrosis followed by an atrophy of the liver cells. Thus, the normal cellular structure of the liver is replaced by connective and fibrosis tissues. The liver gets shrunken and is hard to the feel *i.e.*, hobnail liver.

Types :—Infantile cirrhosis is similar to cirrhosis in adults and is of 3 types :—(1) Multilobular ; (2) Unilobular ; and (3) Pericellular (this being due to syphilis).

SYMPTOMS AND SIGNS :—The child becomes pale and dull, the body feels warm with no rise of temperature; perspiration at the fontanelles and temples, irritative nature with kicking off bed clothes, as also restlessness are usually seen.

In early cases, the boy is waxy-pale in colour and as the disease advances the boy's complexion changes to a muddy rashy type. The conjunctiva remains whitish or anæmic but may later on become jaundiced due to liver-damage. The appetite is usually poor but sometimes voracious. The digestive system is deranged ; constipation is the rule with occasional passing of pale clay-coloured

* Specially contributed to THE ANTISEPTIC.

stools. In the late cases there is diarrhœa with offensive stools. In early cases the liver enlarges to varying sizes and is soft and firm. Splenomegaly is often present. The symptoms and signs in late cases are:—abdominal distention; prominent abdominal veins which establish the collateral circulation; gastritis with nausea, vomiting, dyspepsia, flatulence etc., minute erosions in the stomach producing hæmorrhage; melæna or epistaxis; temperature is usually raised; urine is scanty and high coloured with deposits of urates; albuminuria in bad cases; liver is usually hard, irregular and shrunken.

Ascites and anasarca.—This is due to portal congestion and obliteration of the venous return as well as to hypoproteinæmia; normally the protoplasm of the body cells keep up the osmotic tension *in situ*, but when the cells suffer protein deficiency this is seriously interfered with and water leaks out into the adjacent loose areolar tissues giving rise to a collection of fluid there. In some cases they may be secondary, due to peritonitis, puffiness of the face and œdema of the feet, generalised muscular atrophy and wasting. Anæmia of the differential ætiology may be present, due to damage of the liver cells. In far-advanced hepatic insufficiency, nausea, vomiting, depression, debility and even coma may occur.

DIAGNOSIS is easy to arrive at, from the above typical signs and symptoms accompanying derangement of the liver.

PROGNOSIS is favourable in early cases without ascites; otherwise grave, usually when complications *e.g.* pneumonia arise.

Complications:—Ascites, circulatory failure, hæmorrhage, diarrhœa and infective fevers like broncho-pneumonia etc.

Sequelae:—Rickets, phthisis, conjunctivitis, scurvy, chronic gastro-intestinal disturbances, and muco-colitis, myopathy, mental derangements, listlessness etc.

TREATMENT:—It is a game of patience requiring intensive, patient and lengthy treatment.

Diet is the all-important factor in treating infantile cirrhosis of the liver. Irregular feeding (feeding whenever the child cries, too frequent feeds, unsuitable articles of food) over-boiled milk undiluted milk and rich farinaceous foods should be avoided. Fats and fat containing foods should not be given to such children. In such cases liberal quantities of proteins and of amino-acids, *e.g.*, protein-hydrolysate meat, sprouted peas, egg-yolk and a moderate quantity of carbo-hydrate *e.g.*, glucose, rice, potatoes, cereals, honey and milk should be given. Systematic feeding at regular intervals and allowing the child to play about in the open air under bright sunlight should be encouraged in order to improve the general health.

Essence of chicken with vitamins, especially B, and B_2 added to it, Horlick's Malted Milk, Cow and Gate milk, Glaxo and

Ostermilk, supplemented by fruit juices (tomatoes and oranges) may be given. Dried figs to children who can chew, may be helpful as a laxative. Purgatives like castor oil, liquid paraffin, enemata with glycerine and soap and water should be avoided. Hydrarg *cum* creta or milk of magnesia, tartarates of sodium phosphate may be used as purgatives, but they are unsuited to anæmic, emaciated and dehydrated children ; for them olive oil plain or in the form of an emulsion with milk or fruit juice may be given. Vitamins A, B, C and D in the form of tablets, drops or injections may be given. The best of them are Adexolin, Haliverol, Ostomalt or vitamin A and D, (Unichem) or Abdic drops, liver extract vitamin B complex and B_2. In cases of iron-deficiency anæmia, ferrous sulphate preparations with marmite and folic acid may be given.

Drugs :—Methionine, Meonin or Girossine, Michositol, Univite with choline can be given. Vitamin K of any quality, Calcium gluconate and other vitamins are useful in jaundice. The next grave complication after jaundice is ascites and hæmorrhage ; for this mercurial diuretics such as salyrgal, esidrone, mersalyl and neptal give good results when given intra-muscularly, provided a definite dose of ammonium chloride is orally administered prior to injection. Saline purgatives and pulvis jalapæ may be used to drain the excess body fluids. Paracentesis should be the last resort when all measures have failed.

Antibiotics :—Aureomycin, terramycin, and chloromycetin are effective in controlling the temperature and diarrhœa ; the foul smell of the urine and fæces clears up if given in doses of 500 mg. Crystalline penicillin with sulphadiazine, sulphatriad, or sulphamerazithine also lowers the temperature and resolves lung complications, such as acute bronchitis, broncho-pneumonia and whooping cough etc. A powder containing zinc oxide (gr. one) pulv. rhei. (gr. three) and calomel (gr. $^1/_4$) given with honey is very useful in cases of simple and uncomplicated cases of infantile cirrhosis. Thyroid, anterior pituitary and other gonadotrophic hormones are absolutely useless in cirrhosis. Jammi's liver-cure is very effiacious in simple and uncomplicated cases of liver. Sometimes good results are obtained with calcium therapy only.

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RESPIRATORY AFFECTIONS AMONG THE COTTON WORKERS IN SOUTH INDIA— SUGGESTED TREATMENT

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DURING the course of an investigation into the prevalence of byssinosis in the cotton textile industry in South India (1949-1951)* it was observed that the cotton workers in the mixing, blow, and card rooms, complained of respiratory and other symptoms, in the following *descending order of frequency* :—

continuous sneezing either as soon as they entered their working spots, or after a short while ; irritation of throat, leading to cough ; cough, mild or violent ; breathlesseness ; chest-pain ; fatigue or bodily tiresomeness ; bodily pains ; disinclination to work ; and not infrequently disturbed sleep during the rest-periods (either at home or at other late times, which are prominently observed in the delayed allergic conditions). Along with the above symptoms, they complained that they had *lost flesh and gone thin.*

Other co-existing complaints were :—Irritation of the skin of the hands and feet, leading to eczema ; increased heat of the body (a subjective feeling) ; stomach-ache due to the inhalation of dust ; ringing in the ears ; gumming of the eye-lids, early next morning (especially in the flue-cleaners).

Only four workers out of 1500 examined complained of *constriction in the chest,* when they got attacks of violent cough and breathlessness.

The time of occurrence of these symptoms varied. These symptoms were either manifested within the first 15 minutes of exposure to the dust-laden atmosphere, or delayed as long as six hours, when the worker had reached home and began to enjoy his night's rest, after the day's labour in the factory.

The duration of these attacks of cough and breathlessness also varied, as the time of occurrence of these symptoms. In a few cases, the duration of the symptoms was only 15 minutes, in some 2 to 3 hours, in others 2 to 3 days, and in a few instances, spread out to even 7 days. The factors that increased or mitigated the duration of these symptoms were—the physical stamina of the worker, the intake of adequate food, and the concentration of dust to which he was exposed.

The attacks of irritation of throat, cough, and breathlessness were relieved either by :—(1) immediately going into the open fresh

* Financed by the Indian Council of Medical Research.

air, leaving his work-spot; (2) taking tea, plantains, or light refreshments; (3) taking drugs and mixtures in the mill dispensary; (4) wearing out gradually, by mere efflux of time; or, (5) going on sick leave, as the very last resort.

For the fear of losing their wages, the workers were very chary in reporting their complaints to the mill doctors, and would work and suffer silently till the last breaking point of health.

The study of the causative agents of these respiratory complaints and symptoms revealed that they were mostly allergic in origin (reaction to cotton dust and its constituents) in 52·70 % and in the remaining 47·30 % to other organic diseases. The severity of the symptoms, varied according to the concentration of cotton dust, to which the worker was exposed. It was also noticed that when the worker came to duty on empty or half-empty stomach (with either inadequate breakfast or meals), the symptoms were particularly worse on those days.

Diagnoses.—The above symptoms and complaints were diagnosed, after careful investigation and are summarised below:—

Diagnosis	Per cent. having the disease	Remarks
I. Respiratory system:		
Hypertrophied turbinals. ..	3·29	
Enlarged tonsils and adenoids ..	1·94	
Chronic pharyngitis ..	4·53	Due to betel-chewing also.
Allergy		
Early reactions. ..	31·57	These are first attacks, which pass off within 2 to 3 hours.
Permanent. ..	13·45	
Delayed. ..	5·18	
Acclimatized. ..	2·50	Once suffered from symptoms at early stage of service, but now free.
Lung weakness. ...	4·53	This is a clinical condition, precursor to tuberculosis.
Eosinophil lungs. ...	2·94	Relieved by acetylarsan injections.
Clinically tuberculosis. ...	3·29	
Confirmed tuberculosis. ...	1·29	X-ray and sputum examinations.
Chronic bronchitis. ..	2·94	
Asthma. ...	3·56	
Byssinosis ...	0·33	Unfit for work

Diagnosis	Per cent. having the disease	Remarks
II. **Circulatory system.** Disorders of the heart.		
1. *Functional* ..	4·53	
Extrasystole		
Sinus arrhythmia		
Tachycardia		
Presystolic murmur		
Senile heart		
Flabby heart		
2. *Organic* ...	10·41	
Heart inefficiency ...	0·97	
Heart weakness ...	4·53	
Anæmia ...	7·44	
High blood-pressure ..	6·47	
III. **Alimentary system:**		
Intestinal worms infection ...	5·69	
Piles ...	0·97	
IV. **Nervous system:**		
Neuritis (Soles) ...	0·97	
Sciatica (Lumbar pains) ...	2·59	
V. **Skin:**		
Skin irritation and eczema. ...	3·66	
Leprosy. ...	0·66	
VI. **Venereal diseases:** ...	0·97	
Malnutrition ...	6·02	
Vitamin A deficiency ...	6·02	Presence of xerosis, angular stomatitis, follicular keratitis, bitot spots, and night blindness.

In view of the possibility of the connection of the respiratory diseases due to cotton dust, with asthma and other allied allergic conditions, differential counts of leucocytes and total counts of R.B.Cs. and leucocytes were made as a routine. These showed that the working conditions in the cotton industry did affect the blood picture and also possibly the bio-chemical contents of the blood (*e.g.*, the reduction of the calcium content of the blood ?). Bio-chemical assays of blood could not be carried out for lack of facilities.

In all the cotton workers, the differential counts of leucocytes show a *decreased* percentage of neutrophils, and an *increased* percentage of other lymphocytes, large monocytes, eosinophils, and basophil cells. But in the case of the *affected* worker (one who complained of the bad effects on him of the cotton dust) the above

percentages were even more marked, as the following table will show :—

Age	Leucocytes	Non-affected worker %	Affected worker %	Panton's Normal data (*) %
30–39 years. For men	Neutrophils	60·99	55·26	50–65
	Lymphocytes	22·43	25·61	15–25
	Large monocytes	9·38	8·49	About 5
	Eosinophils	4·15	6·29	1–3
	Basophils	3·14	4.35	0–to 1
Total R.B.Cs. per c. mm.		369, 0000	326,0000	About 500,0000
Total W.B.Cs. ,,		6,540	8,716	
Total hæmoglobin (gm.) per 100 c.c.		11·41	11·00	About 13·75

(*) There are no data, regarding the blood-cell counts for Indians in general, or South Indians in particular, not to speak of a cotton worker. Therefore Panton's data, regarding a *normal* individual is used for comparison, in this investigation of mine.

As this hæmotological work is the first to be published in India, regarding the South Indian cotton worker, further research work is needed to confirm the above data, presented to the research workers and the medical profession.

(Sir Philip Panton : Clinical Pathology, 1947 Edition).

It may be also pointed out that the cotton workers did not use masks at all, and when they did use one due to pressure of ill-health it was only an apology for a mask, improvised by themselves, either from torn gunny bag material, or out of a towel tied round their faces, when they entered the flue-chamber or did the hand-stripping (flat stripping).

The effects of these symptoms were—the vitality of the worker was reduced, exposing him to attacks of other diseases and infec. tions, increasing the absenteeism due to illness, reduction of the production capacity, consequently leading to the economic low production in the cotton industry, together with the attendant chronic ill-health and indebtedness.

The respiratory symptoms have been classified into two categories, from the preventive aspect of the sickness :—

(1) those due to organic diseases, like heart diseases, asthma, chronic bronchitis, tuberculosis, and physical permanent impairments of the body ; and,

(2) those allergic reactions due to cotton dust.

Those due to organic diseases are readily treated by well recognised methods. It is the initial stage of reaction to cotton dust, which later undermines the health and vitality of the worker, that requires serious consideration in a well-planned health programme, meant for the benefit of industrial workers.

During the course of my investigasion of byssinosis extending over nearly two years, I was greatly interested in these early

allergic cases, requiring treatment. I experimented upon the willing workers, who sought my advice and took treatment under me, using the following drugs. The *basis* of my treatment was —that the drug must be cheap, within the means of the cotton worker (his wages being only Rs. 74/- p.m.) and not too costly for the Mill authorities to supply the drug free of charge. The Mill authorities may be induced to supply this drug, even as a medical amenity, in their own interests, as well that of labour, for this free supply will then be doubly blessed.

The workers were on inadequate diet. A survey of the socio-economic conditions of the workers revealed the poverty and chronic indebtedness of the workers. Under such conditions, with a poor and impoverished diet, the worker cannot maintain his health exposing himself for 8 hours a day to work in the dust laden atmosphere of a cotton mill. Most of them were anæmic, and the assessment of the state of nutrition of the workers showed that the incidence of "subnormals" and "bad" groups was higher than the "normal" and "excellent" groups. These observations and my own professional experience led me to believe that the workers must be suffering from calcium deficiency. I therefore, started treatment with calcium, and certain other drugs, as detailed below :—

The workers were those who came to me, willingly for treatment and co-operated with me, in my experiments with drugs. I tried calcium lactas by mouth (7 to 15 days) calcium gluconate by intravenous injections (5 injections, on alternate days—10 c.c. 5% solution), penicillin (2 lacs units, 5 injections on alternate days penicillin with calcium gluconate combined injections for 7 days, and *Anthisan* (a patent antihistamine drug) injections. The results of my experiments are summarised below :—(*vide table on page 390*).

Along with a reduction in the reactions to cotton dust, by way of lessened irritating cough and breathlessness, the general condition and anæmia of the worker also improved. It will be noted from the table that calcium salts, either by mouth (in early cases) or by injections (in later cases) were useful in the treatment of sickness of cotton workers exposed to cotton dust. Penicillin by itself had no marked effect on the health of the worker. Penicillin combined with calcium gluconate injections did show improvement. The anti-histamine drug *Anthisan* (May & Baker's) freely sold in the market and very often used by many doctors had comparatively little or no effect on the allergic reactions due to cotton dust. Moreover, *anthisan* is a costly product. When the worker has reacted well to the calcium salt injections they were put on tonics, like "Livbraun" (P.D.) and "Seng" (Peacocks). These workers improved more quickly than when other patent tonics were prescribed. As the allergic reactions were due to a specific cause, *viz.*, cotton dust and not to a vitamin-deficiency disease, vitamin products (so numerous in the market) were discouraged. Vitamin

products are of no practical value, besides being costly and beyond the means of the mill worker.

Diagnosis.	Total number treated.	Degree of response. No. +++	No. ++	No. +	No. **
Early allergy :					
(less than 3 months' duration) ...	150				
Calcium lactas by mouth ..	80	75	5	—	—
Calcium gluconate injections ...	40	38	1	1	—
Penicillin (2 lakhs). ...	10	—	—		10
Penicillin with calcium gluconate injections, on alternate days ...	12	12	—	—	—
Anthisan (3 injections) ...	8	—	—	—	—
Permanent allergy : (pronounced cases) ..	42				
Cal. lactas by mouth ...	15	—	5	5	5
Cal. gluconate injections ..	10	6	2	2	—
Penicillin ...	5	—	—	2	3
Penicillin with (cal. gluconate injections) ..	8	6	2	—	—
Anthisan : ...	4	—	—	2	2
Delayed allergy : ...	36				
(Reactions of cough and breathlessness, loss of sleep, coming after about 5 to 6 hours to exposure to work, at nights, when the worker is taking rest, at home).					
Calcium lactas by mouth. ...	10	—	4	4	2
Cal. gluconate injections ...	10	8	1	1	—
Penicillin ...	6	—	—	—	6
Penicillin with calcium gluconate injections.	6	1	5	—	—
Anthisan : ...	4	—	—	1	3
Acclimatized to cotton dust allergy ...	12				

All the drugs have been found to be of doubtful value, and hence not recorded.

Key :—+ + + Quick response and able to get over and withstand the symptoms, after 3 days of treatment.
+ + Rather slow response, after 3 days of treatment.
+ Slow response, observed after 5 days of treatment.
** Of doubtful value, in assessment of efficacy of the drug.

N.B. :—The deworming treatment with santonine (grs. ii) was given, preliminarily, as a routine to all the workers; before they were put on the calcium drugs, penicillin and anthisan. This was done to eliminate the common helminthiasis infection.

In many of the cases, there was immense improvement, after the administration of santonine, as shown by the reduction of the severity of attacks of breathlessness.

Exposure to cotton dust in the cotton textile industry cannot altogether be avoided, even with the best modern equipment, to control dust nuisance. To preserve health, physical fitness, and efficiency in the worker, and in order that the mill may not suffer from loss of production, due to sickness and absenteeism of the workers, I recommend the following treatment for all allergic conditions met with in the cotton industry. It is based on the results of my investigation detailed above.

It is well known that calcium salts are the cheapest of the drugs. It will not cost much to the worker nor to the Mill authorities, if supplied *free to the workers*. The Mill authorities may

treat the free supply of calcium salt (lactate) to the workers, especially in the mixing, blow, and card rooms as an amenity, similar to the providing of a canteen and other social labour welfare schemes, meant for the betterment of the health of the workers. My suggestion is as follows:—

To all the workers, especially in the mixing, blow, and card rooms, a blanket-treatment of calcium lactate powder, 30 grains daily, for 7 days in a month regularly be given free just like the Army treatment for malaria. And in the case of the *affected* worker, who has not yet developed any organic disease, a combined course of injections of penicillin (2 lakhs) and calcium gluconate 10 c.c. of 5% solution on alternate days is recommended. Five tubes of penicillin (of any make) and 7 intravenous injections of calcium gluconate proved very effective, in the cases under observation.

The problem of food or nutrition is an economic one, involving the questions of poverty, employment, price of foodstuffs, agricultural production and distribution, and therefore, it is largely a question of economic distress, which tells on the health of the individual or the community. What little can be done, by the doctors and the mill authorities, in ameliorating the conditions of the cotton workers, can be best achieved by the simple use of the cheapest drug, a calcium salt. It is for both the Central and Provincial Governments, to take up this question of protecting the health of the cotton worker, to provide the cheap ounce of medicine at the initial stage and spare the costly pound of cure, at a later stage in life. 'A stitch in time saves nine' is a well-known saying, well worth remembering to safeguard the health of the cotton workers.

Further research is required to confirm my observation, that cotton dust lowers the calcium content of the blood and produces anæmia and an altered picture of differential counts of leucocytes; and also to confirm my suggestion that the treatment with calcium be standardised for universal and uniform adoption in all the Indian cotton mills, to secure improved efficiency in the cotton workers, and better production and benefits to the cotton mill authorities.

Premenstrual Exacerbation of Tuberculosis and its Treatment

Cervia, Regidor, and La studied the problem of exacerbation of tuberculosis in the premenstrual phase of the ovarian cycle, in 12 patients aged 30 to 40 years, who showed increase of active tuberculosis and other severe premenstrual symptoms. 400,000 "units" of vitamin A on alternate days were administered to each of these 12 patients during the latter part of the intermenstrual period. The premenstrual tension decreased and the increased activity of the tubercular infection lessened. The prophylactic use of vitamin A in tuberculosis is therefore stressed.—(*Rev. Clin. espanola*, 1951, 41, 107–111, *Eng. Abst. Nut. Abst. Rev.*, Jan. 1952, p 727).

MALARIA TREATED SUCCESSFULLY WITH RESOCHIN

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BEING a highly endemic malarial area, the medical practitioner in Midnapur and the surrounding districts is daily faced with a number of malaria cases, both B.T., and M.T., of varying degrees of severity. Effective treatment of such cases should not only aim at a rapid cure but also confer freedom from relapses for a reasonable length of time. With these objects in view, I had occasion to try Resochin, the latest synthetic antimalarial developed in Germany by Bayer Laboratories just before the last war. Literature on Resochin indicated that the drug was not only a powerful schizonticide and hence an effective curative agent, but given in small weekly prophylactic doses, it sustains a high plasma concentration, thus acting as a suppressive for any length of time. The results of treatment as reported in the following cases, are remarkable. Resochin seems tq fulfil both the objects in view as, practically in every case, there was a rapid cure and no relapses were reported by the patients warned to intimate any recurrence of fever. Another important fact emerged that Resochin is a safe antimalarial even in cases of pregnancy having practically no by-effects on mother or fœtus.

The following cases were treated successfully with Resochin (Bayer) :—

Case 1.—Woman aged 22, mother of two children, carrying six months, thin built and in poor health.

Fever, duration 3 days, possibly without remission and temperature very high. No medicine was administered for fear of miscarriage. Complained of severe headache and pain in the calf-muscles, in the lower abdomen and back simulating miniature labour pains and no movement of the fœtus. Examination revealed Temp., 104°F., eyes injected, tongue covered with white coating, pulse 140 per minute and of low tension. Palpitation of heart present with hæmic murmurs. Anæmia (+++). Blood film showed M.T. rings in large numbers. Hæmoglobin 60%. Miscarriage was apprehended.

TREATMENT :—Resochin 6 tabs., on the 1st day 2 at 2 hrs. interval and 2 after 8 hrs., 2 on the 2nd and 3rd day after light meals. After supportive measures–with administration of Coramine, glucose and symptomatic treatment with Chloretone and Veganin tablets. The temperature came down to normal with heavy perspiration 4 hrs. after administration of Resochin and there was full remission within 6 hrs. No further rise subsequently. There was great relief to the

patient and she was free from the trouble within a short time. Uterine contractions subsided. She had no relapse since last two months and had improvement in her hæmopoietic and heart conditions.

Case 2.—Woman aged 25, multipara, pregnancy 3 months. Fever duration 8 days, probably with short periods of remissions. Very weak, anæmic and exhausted. A course of Resochin of 10 tabs., 6 on the 1st day and 2 on the 2nd and 3rd days was all that was necessary to bring down the temperature within 4 hrs. No bad effect on the conceptional stage. There was no sign of intolerance.

Case 3.—Boy aged 16, running a temperature of 105°F. for two days. He was only semi-conscious with symptoms of vomiting and hiccough. Blood film—full of M.T. rings.

Anti-emetic powders+ adrenalin followed by a course of Resochin 6 tabs., on the 1st day at 2 hrs. intervals was sufficient to effect a clinical cure.

Case 4.—Child aged 3 years. Fever with convulsions. Passed big round worms with stool and vomit. Temperature very high and continuous and the patient was unconscious. M.T. rings present. With proper treatment of the convulsions and other supportive measures a course of Resochin of 4 tabs.,—2 on the 1st day and one on the 2nd and 3rd days was all that was necessary to produce an uneventful recovery. The temperature came down 3 hours after starting of Resochin.

Case 5.—Female aged 17 years. Fever 5 days' duration. Very weak and highly anæmic. Fever continuous. Camoquin 3 tabs., at a time, was given on the 2nd day. The fever came down and there was remission on the next day but there was a rise again after 12 hours. A course of Resochin of 10 tabs., 6 on the 1st day and two on the 2nd day and 3rd days was given. Fever came down after six hours. There was no further rise and no relapse since two weeks.

Case 6.—Women aged 22. 8 months pregnant. History of fever with rigor and headache for two days and short remission after 24 hours. A course of Resochin of 10 tab. 6 on the 1st day and two on the 2nd and 3rd days. Fever subsided on the next day. Complained of psychosis on the next day; but I have no personal experience of the same and I cannot say whether it was due to Resochin or to the fever itself. She had no fever since last 3 months and has given birth to a normal child.

Case 7.—Woman aged 28, multipara, with history of occasional attacks of varying grades of fever for several years, associated with loose motions. Now carrying 8 months and having rise of temperature in the evenings with remissions at night. Examination revealed the following signs :—

(1) Typical malarial cachexia with enlarged spleen (+++) liver (++). Both the visceræ hard; (2) anæmia ++ Hæmoglobin 55%; (3) heart—dilated and feeble; (4) slight congestion in

the lung bases; (5) puffiness of the face plus swelling of the feet due to œdema; (6) tenderness in the hypogastric region and complained of bitter mouth and indigestion.

Urine: acid, albumin present (moderate).

Blood: B.T. parasites present. R.B.C. 3·5 million. W.B.C. 4·5 thousands.

Differential count:—Neutrophil 52 %; Lympho 35%: Eosinophil 9%; Monocytes 3%; Basophil (not found). Aldehyde test—negative.

The enlargement of the liver with hardness and sharp defined margin suggested malaria and amœbic hepatitis now developing a cirrhotic condition.

TREATMENT:—*Resochin* 6 tabs., on the 1st day 2 every 2 hours; then 2 every 8 hours; and then one weekly for 2 months.

Campolon 2 cc. on the 1st day, then 4 c.c, on alternate days for 4 days. Another 5 injections of liver extract of T.C.F. brand were given as I had no more Campolon in stock. Milk protein 5 cc. bi-weekly, 10 injections were given. Fever stopped within two days. Hæmopoietic response was satisfactory and there was a feeling of general well-being and improvement in appetite. There was practically no reduction of the enlarged organs mentioned above but tenderness in the liver area and puffiness disappeared and there was no loose motion. Resochin proved to be a very helpful adjunct to treatment as it stopped further attacks of the devitalising fever and probably it had a good effect also on the associated hepatitis which may have been anæmic in origin though it was very difficult to diagnose the same at that stage and in the presence of so many other factors.

Case 8.—Boy aged 14. History of fever with swelling of the joints for a few years. Fever with pain in all the big joints of the upper and lower extremities and tenderness. There was slight swelling of some of them—not very perceptible. Fever duration 2 days—Temperature 104°—105°F. without remission. Case was thought to be rheumatic fever but on examination of blood film—M.T. rings were found in large numbers and a course of Resochin of 10 tabs.—6 on the 1st day and 2 on the 2nd and 3rd days brought down the temperature to normal with subsidence of pain in the joints.

Dangers of Anti-histamine Drugs

Even though most of the reactions to the antihistamine drugs are fortunately mild, they may have serious results. The drugs may induce drowsiness, or dizziness that may lead to accidents, particularly among motor-car drivers, aircraft pilots and machine operators. The ill-effects of antihistamines are most frequently exerted on the nervous system, but they have been known to affect also the heart and the digestive system; there have been a few instances in which granulocytopœnia has been traced to these drugs. Children appear to be more susceptible than adults to these drugs and are more subject to convulsions.—(*New York State J. of Med.*, 15-5-1951 quoted in *The Med. Rev.*, March 1952).

TWO CASES OF MALIGNANT MALARIA

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Case 1.—I was called in to see a lady about 45 years old with cholera-like symptoms in the village of Ghatera.

History revealed that in the morning, while sweeping the house she felt slight rigor and violent gurgling sounds in the abdomen, and she took to bed. Vomiting and diarrhœa soon followed, and she was given medicine by a local *vaid* who also gave her some injections, but the symptoms gradually worsened and about six hours later, she fainted, with no pulse at the wrist.

On examination:—Patient was ill-nourished, with a weak constitution, semiconscious, and she could reply to questions in a very low whisper with difficulty, and complained of severe burning sensation all over the abdomen, as "if a fire was burning inside." Tongue was dry and coated. Lips dry and contracted, intense thirst but nothing was retained. Both pupils equal; reaction to light absent, pupillary reflex slightly present. Eyes sunken, partly due to advanced age and partly due to loss of fluid. Fingers contracted. Pulse imperceptible at the wrist, heart sounds feeble. Some rales and rhonchi present in both the lungs, which may be due to a persistent cough she had for the last one month. Respiration harsh, bronchial, thirty per minute. Extremities cold to the touch and wet with beads of perspiration. Temperature subnormal in the axilla. Rectal temperature not taken due to her sex. Liver N.P.; spleen hard, about four fingers beyond the costal margin. Abdomen slightly tender, good peristalsis audible with stethescope. Motions began first, each followed by vomiting, at first containing fæculent matter and soon became watery and then rice-water like. Vomiting watery and later on dry. Urine not passed with the last four or five motions. No cramps in the leg and thigh muscles.

Diagnosis.—With the above symptoms, I was unable to decide quickly between cholera and malignant malaria, and was perplexed what to do, and there were very little chances of survival of the case.

After thinking over for a few minutes, and in view of the enlarged spleen, the peculiar onset of the symptoms, severe burning sensation in the abdomen which I had invariably found in almost every case of malignant malaria, the unfavourable season for cholera, (no other cholera case in the vicinity), and the place being highly malarial, I diagnosed the case to be one of malignant malaria of the choleric type. No bacteriological examination was done due to lac of facilities.

Treatment:—As a routine measure, I injected 4 cc. Corvotone (nikethamide) with 200 cc. 25% glucose in normal saline I.V.

After some time the pulse became perceptible at the wrist but was still thready; no further improvement was noted in the general condition. As a desperate measure, I injected 10 gr. Quinine bihyd., mixed with adrenalin 1:1000, 1 cc. I.M., and the following: (1) Strychnine sulph. 1/60 gr.; Atropine sulph. 1/100 gr.; Mft. Inj. subcuta.

(2) Glucose saline 5% one pint; soda bicarb 7½% 25 cc. I.V.

(3) Patient was wrapped in blankets and hot water bottles were applied to the extremities. After about 45 minutes, the patient opened her eyes, respiration became normal, pulse improved with V/T still low, and she felt a bit better. Bismuth mixt. with camphorodyne was prescribed and Quin. cap. 10 gr. each, three in 24 hours. Kaolin, glucose, soda bicarb. in ice water given to be taken in plenty, as the digestion permitted. Coramine 15 cc. given every two hours in glucose water. Strong tea advised as well as rice soup if she desired to take something. I left the patient in a half improved condition.

Next day when I visited the case again I found her in quite a good condition. Pulse full and bounding, no motion, no vomiting, skin hot to the touch, temperature 100°F. in the mouth. Urine passed, but she had a half restless night due to the burning sensation and general weakness. Quinine injection repeated with 25% glucose saline with corvotone 2 cc. I.V.; alkaline diaphoretic mixt. with paludrine tablets given.

Patient became quite all right but the general debility persisted for some weeks, for which she was given a bottle of Quinoferrum and other necessary instructions for the convalescent period.

Only with difficulty could I persuade her husband to let me administer so many injections to a definitely dying lady, specially when there was no satisfactory response to the first injection.

Case 2.—On 12-5-'51 I was called in to see M., in Naurangpur village, about two miles away at 2 o'clock in the day; he was reported to be in a serious condition due to diarrhœa and vomiting. I hastened to the spot, fully equipped for cholera treatment, and found the patient lying in an ill-ventilated room, with all the doors closed and in an unconscious state.

History of the case:—The patient got temperature five days previously with slight rigor, which came down in the evening with perspiration. He began to attend to his farm duties, from the next morning, up till the present illness.

Present history:—He went to plough the field on the day of his illness, in the early hours. When he was at work, at about 8 A.M., suddenly he felt a burning sensation in the epigastrium, which later spread to the whole of the abdomen, and he felt very weak. He returned home and on the way, felt a slight shivering and had two or three vomits. Motions began after reaching home, and contained

fæculent matter in the beginning but later became watery and red in colour. Vomiting bilious at first was afterwards watery. This continued up to 1 o'clock, when he became unconscious, and I was called in.

On examination.—The patient was about thirty, stout and in good health. He was unconscious. Both pupils normal, pupillary reflex present. Temperature 102·4°F in the axilla. Spleen: palpable, soft, one finger beyond the costal margin. Skin: hot to touch. No apparent dehydration. Abdomen: soft, no tenderness present. Liver and lungs: normal; Respiration: normal. Pulse: quick and feeble. V/T good, and proportionate to the temperature.

Mosquitoes were reported to be in abundance in the locality.

History of the case, mode of onset of symptoms, spleen enlargement, and severe burning sensation in the abdomen, were sufficient to diagnose the case to be malignant malaria of the abdominal type.

TREATMENT:—(1) I at once injected 10 gr. Quin. bihyd. in saccharose I.M. and waited for about 20 minutes, watching

(*Contd. on page 398*)

Human Adrenal Cortex after Administration of ACTH and Cortisone

The increasing availability of ACTH and cortisone for clinical use afforded O'Donnell and his coworkers of the Michigan University, the opportunity to examine the adrenal glands of patients who had received these preparations prior to death. The interval between the last dose of ACTH and the necropsy ranged from 0 to 23 days and of cortisone from 0 to 51 days. The duration of therapy ranged from 1 to 22 days and 12 to 106 days respectively. The total dosage of the two preparations ranged from 40 to 3785 mg. (ACTH) and 1050 to 6400 mg. (cortisone). The conditions in which ACTH was administered comprised Br. asthma, ogranic brain syndrome, myeloid leukemia, monocytic leukemia, gangrenous diverticulitis and biliary cirrhosis. Cortisone was used in cases of acute disseminated lupus erythematosus, generalized scleroderma, multiple myeloma and bronchopneumonia.

The structural changes in the adrenal glands of 14 patients (9+5) were observed and recorded. In ACTH cases (9) loss of lipids, hypertrophy of the zona fasciculata and zona reticularis and in some cases cortical hyperplasia occurred. The morphologic pattern in the adrenal glands of these patients was similar to that observed in patients who have been subjected to stress. In the cortisone cases, marked atrophy of the fasicular and reticular layers and a broadening of the zona glomerulosa were manifest. Though the sudanophilic material was reduced in concentration some was still present as intracellular globules. These observations are comparable to the changes noticed in adrenal glands of persons in whom there has been destruction of the pituitary gland.

This suggests that cortisone administration induces adrenal atrophy by suppressing the secretion of the pituitary adrenocorticotropic hormone.—(*Arch. Int. Med.*, 88, 1, July 1951, pp. 28-35).

the pulse and heart for any depressant effect of the drug. I had coramine and glucose injections ready at hand. I found to my utter surprise, that the patient opened his eyes and asked for water, and in a whisper he told me that he was feeling slightly better and that the burning sensation was subsiding, which was the main cause for his being unconscious.

(2) I further injected 100 cc. of 5% glucose saline with Corvotone 2 cc. and Redoxon 2 cc. I.V., to safeguard the patient against fluid loss.

(3) Camphorodyne with Bismuth salicylas mixt. was prescribed; also 10 gr. quinine capsules, to be swallowed with strong tea two hours after each dose, three capsules in 24 hours, and icy cold water to drink.

Patient became quite all right by the next day. He had no motions in the night and slept for some hours. Paludrine ·3 gm. was further prescribed to complete the cure and also as a prophylactic.

The point of interest in this case is that the patient got well without getting any treatment to check the blood which he passed in every motion. Specific treatment for malaria alone was found to be sufficient.

Mercury for Children?

There is evidence in the pædiatric literature of most continents that mercury is no longer being prescribed with the old time characteristic assurance. Dr. M. L. Thomson and two other members of his team, working in the Royal Hospital for Children in Manchester, have collected the clinico-pathological facts relating to five children, (between 11 months and 3½ years) when they were in hospital, each of whom was known to have been taking mercury by mouth at regular intervals for periods extending over months, and all of whom presented a clinical picture of nephrosis.

It may be that we are on the fringe of a better understanding of the implications of mercury treatment. We know that inhaled mercury fumes, ingested mercury pills and powders, and napkins soaked in biniodide lotion, may all give rise quite easily to symptoms of poisoning. Exceptionally, toxic side-effects can be traced over a period to the time when an amalgam dental fitting was first inserted. A further complicating feature is that an individual who shows signs of sensitivity to one mercurial compound cannot be relied upon to react to all such compounds. It is important that we should not be driven from our pharmacopœia through fear. The immediate need is not to jettison useful drugs but rather periodically to review therapy in use and be sure that the value justifies the risk. Teething powders (contain usually about 30% of calomel) worm powders, and grey powders have become too convenient a medicament. The object should be to do away with as many powders as possible and at all costs to discourage any tendency on the part of the parents or the family to consider daily medication as essential to health in childhood. The greatest risk to which a child may be exposed is subjugation to a routine of this kind with no pauses to review the situation.—(Annotation *Br. Med. Jour.*, 16th Feb. 1952, p. 370).

When chronic fatigue
lack of energy
poor appetite
apathy
bring the patient to you for help . . . . . . a good tonic is often all that is needed to restore physical and mental tone.

NEURO PHOSPHATES ESKAY
and ESKAY B_1

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ALL-INDIA MEDICAL INSTITUTE

THE laying of the foundation-stone for an All-India Medical Institute by Mr. J.T. WATTS, New Zealand's Minister for Industries and Commerce opens a new chapter in the history of medical education in our country. This institute is the result of the Colombo plan. The Government of New Zealand has given a magnificent donation of a million pounds towards the cost of the institute.

Explaining his country's attitude, Mr. WATTS said that this was one of the first fruits of Indo-New-Zealand co-operation. Explaining the basic conceptions of the Colombo plan, Mr. WATTS said that the plan was a sober and realistic endeavour to reach an ascertainable goal in the next five years and provide food and other essential facilities to the people of South and South East Asia.

He characterised the programme envisaged under the Government of India's plans for the construction of this institute as an ambitious one and said that he hoped that a start having now been made the dream will come true and progress would be achieved. Striking a note of optimism, Mr. WATTS said that inspite of apparently overwhelming difficulties, in the face of political inability, in spite of mistakes already made, there is something working in the peoples of South and South East Asia, which will enable them not in many years to point out with pride to the very great achievements in the fields of material well-being.

Speaking on the occasion, the Hon'ble RAJKUMARI AMRIT KAUR, Union Health Minister said that it was one of her ardent desires to bring into being an institute which would not only provide first class post-graduate training to our medical personnel in their

own environment and afford facilities for the highest type of research in the extensive field which our country offered but which would also set up and maintain high standards of medical education and above all, inspire in our trained personnel the lofty ideals without which those who adopted the noble profession of ministering to humanity could not really rise to their full stature.

Continuing she said "Prosperity and contentment should be weighed in terms of human rather than material values." There cannot, according to her, be any real prosperity without physical and mental well-being. We have neither the institutions nor the personnel to give adequate aid and relief to the people most of whom live in rural areas.

Explaining the aims of the institute, the Minister said: "First this is to be an All-India Medical Institute in the real sense of the term. Its branches will gradually come into being all over India. It is essential not only to lay down a uniform standard of medical education for the entire country but also to create within all limbs of the medical profession a feeling that they do not belong to any particular State. The personnel who will receive training in this institute will be drawn from all over India on the basis of merit only.

Emphasising the need for the study of social medicine the Hon'ble the Health Minister said: "It is my firm belief that the home environment of a person, the conditions under which he has been working and the extent of maladjustment that exists in his relations with his family and community are contributory factors towards ill-health and it is therefore eminently desirable that a study of social pathology should receive as much emphasis as the study of clinical pathology and such study, she hoped, will be made an essential part of the under-graduate teaching offered by the Medical College associated with this All-India Institute.

This Institute will have three wings—an undergraduate medical college, a post-graduate research and training centre and a dental college and is expected to be completed in 3 or 4 years. It will be situated in the grounds of the Irwin Hospital at Delhi.

To New Zealand must go the grateful and sincere thanks of millions of people of India who will be benefited by this magnificent donation and this new Institute of public health.

As Mr. WATTS said, the day will not be far off when the people of India will enjoy good health and when this All-India Medical Institute will play a worthy part in promoting and maintaining good health in the people of India.

THE NEW COMMITTEE

THE Government of India have constituted an Expert Committee to advise them on the organisation and general planning of the All-India Medical Institute and to assist in its development through successive stages. The Committee consists of Dr. LAKSHMANASWAMI MUDALIAR, Vice-Chancellor. Madras University (Chairman), Dr. JIVARAJ MEHTA, Minister for Public Works, Bombay, Dr. V. R. KHANOLKAR, Director, All-India Cancer Research Institute, Bombay, Dr. T. N. BANERJI, Formerly Professor of Medicine at the Patna Medical College and Dr. D. C. CHAKRAVARTI, Principal of the Calcutta Medical College. Dr. K. C. K. E. RAJA, Director-General of Health Services is the member secretary. This Committee was inaugurated recently in Delhi in the presence of a distinguished gathering.

One of the recommendations of the Bhore Committee was the starting of an All-India Medical Institute and the formation of an advisory committee for this purpose. While we have nothing but praise for the eminence of the members of the Committee we are however, constrained to say that the speech of the Hon'ble the Minister for Health at the Centre makes us feel that the policy that the Government of India is going to adopt is one which has been tried all these years without much benefit.

The Hon'ble RAJKUMARI AMRIT KAUR complained about the deteriorating standards of medical education and said that it will indeed be the death-knell of progress in medical science if this lowering of standard becomes a fact. But her propaganda that the All-India Medical Institute will remove this defect is one which it is difficult to believe. In the course of her speech she said that far too little attention is being paid to the quality of the doctor who leaves the portals of our medical colleges. Continuing she said that this institute will admit to the undergraduate college men from all over the country who possess the highest qualifications, and that *merit and merit alone* must be the criterion for all who enter its portals whether as teachers or students and an all-India spirit must permeate them, for the cause is for the country as a whole. We wonder if the members of the committee subscribe to this view. The reason for the falling standards, in our opinion is the method of selection of those who enter the medical colleges. Merit, in provinces and especially in Madras, has no value. It is evidently at a discount in the selection. Communal consideration weigh more than merit and dubious methods have been adopted for selecting candidates after the Supreme Court had declared that selection of candidates on communal basis was against the spirit of the constitution. Is the Hon'ble the Minister for Public Health prepared to instruct the Provincial Governments that this wholesome principle which she advocates shall be followed in the States as well?

We doubt if the members of the Committee subscribe to her views for so many of them in their respective provinces have been staunch advocates of communal tendencies.

The Hon'ble RAJKUMARI AMRIT KAUR is evidently not in favour of the double-shift system for she says that the adoption of such a system will produce cheap medical personnel and that our educational systems are something to be zealously guarded. She proceeds to say that India can well be proud of the contribution she has made to the specialised agencies of the United Nations Organization for health, but this place cannot be retained if our educational standards go down. "Indeed," she proceeds to say, "the recognition of our degrees may even come in jeopardy unless we are careful." May we ask how the recognition of our degrees may come in jeopardy and who is the authority to whose whims and fancies we must cater? We thought the days were gone when Indian pampering to the wishes of a foreign authority controlled medical education. We do hope that the Hon'ble RAJKUMARI AMRIT KAUR in whose ability we have ample confidence will put her foot down on any attempt made by foreign authorities to control the standards of our medical education. The needs of our country must be attended to first and foremost and no other considerations must weigh with the Hon'ble the Health Minister in arriving at a decision.

We agree that the ideal thing would be to start more medical colleges. But, are the States in a position to spend enough money for this purpose? Or have the States the necessary personnel? While the Hon'ble RAJKUMARI AMRIT KAUR deplores that rural India has no medical aid and wants medical men to go to rural areas in large numbers, she has not given us any suggestions as to how these large numbers of medical men are to be produced unless the shift system is adopted. As things stand at present, there seems to us to be no other way out except to adopt the shift system. If due consideration is not given to the shift system and if it is to be condemned on mere theoretical grounds, then all the efforts of the Hon'ble RAJKUMARI AMRIT KAUR to produce more medical men will be only a vision and her hopes that rural India will get medical relief will never be fulfilled. We are afraid her advisers are those who are opposed to the shift system and who still believe in maintaining such high standards even for the production of medical men for rural India. She proceeds to say that it is a blessing that medical education is in the hands of the Government of India and it is because of her anxiety not to lower the standards that she has constituted the All India Council of Post-Graduate Medical Education.

Up till now the control of medical education was left to the All-India Medical Council which for years was said to be the authority in whom was vested the powers of inspecting the colleges to decide whether medical education and post-graduate medical education were

developing on proper lines and whether the standards obtaining in the various medical colleges were of the required type. But we find that the all India Council of post-graduate medical education will, according to the Hon'ble the Minister for Public Health with the Union Government, take over these duties. Does it mean that because the All India Medical Council has advocated radical changes in teaching which is not appreciated by some that the Hon'ble the Health Minister has made this alteration ? The proper thing for her would have been to include in this new Committee such eminent men as the President of the Indian Medical Council and the President of the Indian Medical Association who have made notable contributions to the study of medical education. We hope the committee will coopt men and women who may not hold the same views as they do.

We note that building plans will also be within the scope of this committee. We have always stressed the view that in our country too much money is being spent on brick and mortar and too much emphasis is laid on the building than on the students that study therein. The speech of the Hon'ble the Health Minister leaves no doubt in our mind that the policy that has been followed so far will be continued. We doubt if any fruitful results will be achieved within the next 50 years.

The Hon'ble the Health Minister appeals to the zeal and missionary spirit of medical men and requests them to work in villages. Life does not simply demand zeal and missionary spirit. Doctors must be enabled to live comfortably and in accordance with their status. Unless this is done very few medical men will be forthcoming in response to her appeal. She wants every graduate to serve for at least six months during his training and perhaps for one year after he is qualified in the villages. How she is going to achieve this she has not disclosed. Perhaps it is going to be by an enactment of the Government of India. We wonder if this is a wise policy and whether medical students and medical men will agree to be subjected to enactments of this nature.

Her plea on behalf of nursing requires every support. The profession of nursing has not got the support it deserves and that noble profession has been neglected for some time. We do hope that the nursing college that will be established will be a vital limb of the All India Institute and that the profession of nursing will get the attention it deserves. We also welcome the creation of a dental college about which there can be no two opinions. We wish the committee all success in its endeavours.

We note Dr. A. L. MUDALIAR in his speech said that members of the committee shared the Health Minister's anxiety regarding bringing up medical education and medical services in the country to the level of international standards. We do hope that in this

attempt he will not forget the national needs and the cry of the sick and suffering India, particularly rural India.

The Hon'ble Dr. U. KRISHNA RAU, M.B., B.S., M.L.A.

With great pleasure and pardonable pride we wish to convey to our numerous readers the glad and welcome news of the appointment of one of our editors, Dr. U. Krishna Rau to the responsible post of Minister for Industries, Labour and Transport in the Rajaji Ministry in the Madras State and request them to join with us in offering him our felicitations. As our readers are all aware, Dr. U. Krishna Rau has ably served the country in various spheres of public life and deserved well of the people. As an efficient and exceedingly popular doctor, as an ever vigilant and active Councillor of the Madras Corporation for over 20 years, as Mayor of the City of Madras, Dr. Krishna Rau has done remarkably good and selfless work. As a long standing member and recently as President of the South Indian Provincial Branch of the Indian Medical Association he has fought for the rights of the profession and diligently worked for improving the status of its members. As Co-Editor of The Antiseptic for over 25 years he has maintained a high standard of journalism and he is held in respect and esteem by everybody. He had to resign all these offices on his elevation to Cabinet rank.

Dr. Krishna Rau is an ardent and staunch congressman with progressive and liberal views and has always upheld the high ideals of Mahatmaji. Himself a keen sportsman Dr. Krishna Rau has all these years evinced great interest and enthusiasm in the sporting activities and the well-being of the youth of our state. He is simple and unostentatious in his habits, easy of address and has a smile for every one he meets. His great popularity with the citizens of Madras was demonstrated beyond cavil when he secured a thumping victory in the general election over many powerful contestants. We wish him good health and a long and useful life during which we are sure he will continue to serve the country and his fellowmen with the same zeal, devotion to duty and steadfastness of purpose that have characterised his long and useful career during 25 long years.

He has conveyed to the readers of the Antiseptic, to its contributors and to its advertisers the desire that they should all continue to give the Antiseptic their unstinted and loyal support as they had done during the long years he was in charge of the Journal. He is succeeded in the joint editorship by Dr. U. Vasudeva Rau, a worthy son of a worthy father to whom we extend a cordial welcome.

Hon'ble Dr. U. KRISHNA RAU,

Minister for Industries, Labour and Motor Transport
Government of Madras.

MEDICAL EDUCATION AND THE MEDICAL COUNCIL OF INDIA

THE Executive Committee of the Medical Council of India appears to have recommended a reorganization of the course of medical education so as to provide for (1) preclinical training for 1½ years in preclinical subjects ; (2) training in clinical subjects for 3 years and (3) one year's internship in a recognized hospital. The Committee also recommended a double-shift system in Medical Colleges so as to enable a larger number of medical graduates to be turned out every year. The Vice-Chancellor of the Madras University however, appears to have viewed the suggestions with disfavour as, in his opinion the responsibility for increasing the number of medical men in the country was not part of the duties which the Medical Council of India was called upon to shoulder. The Universities in his opinion were not bound to consider or accept any of the recommendations of the Medical Council of India in this regard. We do not wish to quarrel with him on this debatable point and leave it to the political pandits to have their say. But we are certainly entitled to stress the urgent and imperative need for providing facilities to train a much larger of medical men every year and to this end explore all possible avenues with an open mind.

The Conference of Health Ministers of States held at New Delhi in 1950, while on the subject of Medical Education considered the question of incorporation of Homœopathy and the different indigenous systems of medicine (Ayurveda, Unani, Siddha etc.) during the undergraduate course in modern medicine envisaged in the proposed reorganized courses of medical education. This suggestion was before the public, medical and lay, for well nigh 2 years and should certainly have been considered by them from all angles. The Medical Council of India which met in New Delhi on 19th April 1952, afforded the venue for a frank and free expression of informed opinion from the members of that august body. Dr. K. C. K. E. RAJA, our popular Director-General of Medical Services in India, moved the main resolution of the day which stated in effect "that there are such fundamental differences both in theory and practice between modern medicine, the indigenous systems of medicine and homœopathy that it would be most unsatisfactory from the points of view of the interest of the students and the advancement of these systems of medicine to arrange for the simultaneous teaching of these other systems along with modern medicine during the undergraduate course in medicine. The study of the indigenous systems and of homœopathy should therefore, be promoted only as postgraduate courses of study and training after the intending practitioner had obtained basic qualifications in modern medicine". This resolution was passed unanimously, we believe, and must have been transmitted to the authorities concerned for such action as may be

deemed suitable in the light of the sober and well-reasoned advice tendered by the Medical Council of India. And we trust that the advice will be accepted and acted upon.

While we do not wish or seek to belittle in any way the homœopathic or/and the indigenous systems of medicine which in ancient days had been taught and practised with success and precision that suited the then prevailing conditions and needs, we feel compelled to point out that conditions have enormously changed since then, in the wake of civilisation and international trade relations, that there has been a tremendous increase in the population of the world and with it an equally large increase in the number and variety of diseases that have come to afflict mankind. These new diseases necessarily require new methods of approach in diagnosis and treatment. The advances made in various branches of medicine, particularly surgery, psychotherapy and pædiatrics to meet these altered conditions of modern life, have been so great in recent years that the older indigenous systems of medicine will take several years to absorb and incorporate them in their structure to the extent of modernising their concepts and practices in those branches.

There has recently been a well planned effort in some States, to give a real orientation to the indigenous systems by getting highly qualified eminent allopathic doctors of experience to investigate the lines on which real progress could be effected in the matter of modernising those systems so as to bring them into line with the advanced systems. Till the results of the labours of these good men are made available, it will be wise to refrain from attempts to superimpose the indigenous systems on the already heavy curricula of studies, prescribed for allopathic medicine.

Hormone Therapy of Cancer of Breast

Gibert reports on 34 women with breast cancer. 13 of them had ovariectomy and six were sterilised by irradiation therapy. 27 including some treated surgically and by irradiation received hormone therapy by implantation of testosterone propionate pellets into the adipose tissue of the abdominal wall in doses rapidly increased from 600 mg. to 28 gm. 7 died without relief. Of the remaining 27, six survived for several months, without showing any definite arrest of the disease ; 10 were definitely improved for a period of 12 to 15 months ; six apparently recovered for atleast 2 years and two led a normal life for 5 and 6 years respectively, inspite of diffuse bone lesions. Hormone therapy is only palliative. Rapid improvement of the general condition of the patients, relief from pain and repair of bone (only temporary) justify the use of testosterone propionate in the treatment of cancer of the breast. Extensive bone metastases seem to respond better to this treatment than those limited to one part of the skeleton.—(*Press. Medic.*, 59, 1951, pp. 84–87).

THE HEALTH CONDITION OF THE PEOPLE IN INDIA*

Dr. T. S. TIRUMURTI, B.A., M.B. & C.M., D.T.M. & H.
Retd. Principal, Stanley Medical College, Madras.

Appalling Mortality

As a people we are very notorious in our high death-rate, nearly 30 per 1000. Even this is probably an under-estimate, because of incomplete statistical returns. We may roughly estimate that more than 10 million people die every year in India. The very unfortunate feature of the death rate in India is the high incidence of infant mortality *i.e.* among the infants within the first year and maternal mortality *i.e.* of women in child birth and also of women of the reproductive-age-group.

The infant mortality is very high. Nearly one-fourth of the babies born die during the first year. Nearly half of such deaths occur in the first month and of these nearly 60% in the first week. Throughout early childhood the mortality rate remains high. 49 per cent of the total mortality in any year is among those who are below 10 years of age. The corresponding figure for England is stated to be below 12 per cent.

According to Sir John Megaw the maternal mortality rate is 23·5 per 1000 births. It means that atleast two lakhs of women die every year during child-birth. It has been estimated that by the 5th birth-day 40 per cent of the children born are dead and by the 20th birth-day only 50 per cent are left behind. These figures are sufficiently shocking and will show how low in the health ladder India stands.

Mortality Control and Family Planning

We, who belong to the medical profession, must be in a position to give some directive to remedy such appalling mortality. It is a matter for serious consideration whether we can plan a "Mortality-Control-Programme" without at the same time controlling the birth rate. What have we to say about the advisability or otherwise of "Family Planning"? We must give a lead in this matter and advise the Governments and the people, as to the safe, practical and easy methods of birth control and family planning, based on scientific and controlled experiments and adapted to the customs and habits of our people.

Appalling Morbidity

As the mortality rates are high, it is no wonder that the mortality figures are very much higher. It has not been possible to estimate correctly the total morbidity of the population. We have to rely only on hospital statistics. The morbidity figures of the cities will have to be multiplied five or six-fold to obtain a true picture of the total morbidity of the population.

Our greater enemy is 'Malaria', which kills atleast one million people every year. This is according to figures obtained from official sources. There are those who think that really atleast 3 million people die of malaria every year. If that be so, it may be taken to be correct that atleast 10 million persons suffer from the disease. But malaria, though recovered from, leads to such a lowering of resistance in the persons afflicted that they fall an easy prey to other diseases.

Though malaria is our 'Major Foe', there are a number of other diseases, which continue to make great inroads on the health of the population—Cholera, Small-pox, Typhoid fever, Diarrhœa, Dysentery, Tuberculosis, Filariasis etc. All these are curable and also preventable diseases. However much we may expend our already slender financial resources on curative medicine, the problem

* Extracts from Inaugural Address to the Mysore State Medical Conference held at Davangere, Mysore State on 21-12-51.

of preventing the above diseases cannot be solved. Curative medicine may play only a small part in the solution of the problems of infectious, communicable and contagious diseases, but it cannot eradicate these diseases. Unless we mobilise all our resources for a frontal attack through a well-organised health service, very little headway can be made.

Food Problem and Nutrition

To solve the above problem, the problem of securing sufficient food for the people has to be tackled first. Without sufficient food the vitality of the people must necessarily be poor and their resistance to disease very low. 'Food, Food, enough Food' is the urgent cry of the people at present. We should make the country self-sufficient in the matter of food. So long as this is not effected we can only go on tinkering with the "Health Problems".

When the problems of bad housing, insanitary surroundings, unhygienic environments, mal-nutrition and ignorance are staring us in the face, without tackling the above problems on all fronts, we shall be able to achieve very little by way of starting more Medical Colleges, Hospitals, Clinics and the like. So long as the nutrition of the people remains below par, the money spent in both curative and preventive medicine can achieve only very poor results.

Happy Marriage of Curative with Preventive Medicine

The general impression of the lay people is that we, medical men, are not interested in the prevention of disease but are out to make a business of our profession by attempting to cure diseases. I think there is some truth in the above accusation. Have we not left the preventive aspects of medicine to a few persons, who belong to the Sanitary Department, which is now better and more happily termed as 'Health Department' ? So long as preventive medicine is divorced from curative medicine, this accusation will continue. Though the Minister in charge of both curative and preventive medicine is called "Health Minister", the Medical and Health Departments continue to be separate and are administered separately and without much of contact or co-ordination in their work. The Bhore Committee's recommendations to bring the officers of the two departments together as far as possible—atleast in the smaller areas—should prove considerably beneficial.

Rural Health and Medical Aid

I would strongly recommend that the name, 'Rural Medical Officer' be changed to 'Rural Health Officer' and he should be entrusted also with all health duties within his area—such as, vaccination, vital statistics, sanitation and such other public health work. I do not mean that the Rural Medical Officer should be saddled with more responsibilities without increasing his pay and improving his prospects and without giving him additional assistance. It is only then that he can impress on the people that he is really engaged in minimising sickness and not making a sordid trade of the profession. The rural Midwife, Vaccinator, and Health Inspector should be attached to the Rural Medical Officer. The Bhore Committee's recommendations for the Rural Health Centres should be implemented.

Direction to our Social Welfare Activities.

How many of the Registered Medical Practitioners are engaging themselves, in addition to their attending on their patients, in rural health welfare work, maternity and child welfare work, health propaganda, Red Cross, First Aid, Boy Scout movement, St. John Ambulance and other such selfless humanitarian work ? You should remember that the public expect every medical man to be also an adviser in the prevention of disease and in the improvement of the general standard of health. We should endeavour to be the leaders of the people and to rise to their expectation, if we desire to obtain their esteem, respect and regard.

Health Journal

It is probably the realisation that we, as a profession have not done our duty that has influenced the central body of I.M.A. to the desirability of undertaking the publication of "Your Health", which as a monthly magazine will come out shortly. We ought to undertake the publication of correct scientific facts in matters of health and hygiene from authoritative sources, failing which the people will continue to be misled by the ingenious but unethical advertisements featured with attractive pictures in our newspapers and magazines.

Health Museums

I am aware that there is a very well-organised Health Museum at Mysore. Your Government has been the first to organise such a museum in India. As in many other matters the public stand indebted in this also to the late Highness and to Sir Mirza Ismail, who was the Dewan of Mysore at the time. Sir Mirza took considerable amount of trouble in putting up this museum and to him and to the Public Health Department of Mysore we tender our hearty congratulations. A permanent museum of this kind functions as a centre of adult and health education. There is also a Library in the Museum, containing health books and magazines, which are available to the public. Mysore has given the lead and other big cities in India will follow the example. I should not fail in this connection to mention the excellent Health Museum, which has been recently instituted at Hyderabad. The Museum is very well-organised and is put to very good use by the public as well as by the medical students and the health personnel under training. I plead that medical men should interest themselves in organising a permanent Health Museum in every District Headquarters. The celebration of Health Welfare Week once a year will not achieve any lasting benefits. Let us discard mere shows and get down to brass tacks.

Medical Registration Act and Suppression of Quackery

It is hardly necessary for me to point out that there are quacks and unqualified practitioners in all the systems of medicine practising in our country. No serious attempts have so far been made by the Governments for the suppression of quackery. No statistical data are available as to the number of unqualified persons practising in the different systems of medicine in any of our Provinces or States. The Medical Registration Acts are intended for regulating the conduct of Medical Practitioners among themselves and for maintaining medical ethics with respect to the members thereof and in their relation to the public. In my opinion the Medical Registration Act is intended largely for the benefit of the Government. The registration of qualified practitioners under these Acts will furnish the Government statistical data as to the number of qualified practitioners practising the particular system of medicine, for which the registration Act is intended. But in the absence of such a registration of the practitioners of all other systems no statistical data are avilable, as regards the number of qualified and unqualified practitioners and we are wholly ignorant as to the immensity of unqualified practice.

It is not possible for any Government to legally prevent any of the unqualified practitioners from practising their profession and take away the bread out of their mouths. What can be done is only the prevention by legal steps of further influx of unqualified practitioners in any system of medicine.

Therefore, all legislative measures should, in the best interests of the public, be for the time being, a compromise between all conflicting professional interests. I had the privilege of drafting some years ago the Travancore Medical Practitioners' Act, by which all practitioners of the different systems of medicine were registered under different parts of one and the same register and in each part under two compartments, one for the qualified practitioners and the other for the unqualified. By the above registration it was possible for the Travancore Government to obtain statistical data as to the number of practitioners in each category.

All those who were in the practice of the profession at the time were eligible for registration, if they produced a certificate from a recognised officer of Government to the effect that they had been in the practice of the profession, whether allopathic, ayurvedic, unani or siddha. It was notified that the application for registration should be made within the course of a year from the date the Act came into force and that later on no presons will be registered, unless he had obtained a qualification, recognised by the Government and specified in the schedule to the Act and unqualified unregistered practitioners will be prosecuted by Government. The act also provides that no medical practitioner shall assume bogus medical titles on colourable imitations of recognised medical qualifications. By the above Act in Travancore it is expected that unqualified practitioners will dwindle very much in numbers and by efflux of time all unqualified practice will cease to exist.

In no part of India the existing Medical Registration Acts have prevented unqualified persons from practising. What is the use of these Acts, if unqualified persons are allowed to flourish in increasing numbers as they do at present? When unqualified legal practitioners cannot practice, why then should it be different in the case of medical practitioners?

No Government in this country or elsewhere has got inherent powers to enforce only one system of medicine as legal tender. It is a frank recognition of this legal position of a Government that made the Government of Travancore to legislate a Medical Act with a due sense of proportion and responsibility and without being itself a partisan of any system of medicine. Such a credit we cannot give honestly in respect to similar Acts in other Provinces and States. It must be said that Travancore Medical Practitioners' Registration Act was passed to protect the public from unqualified practitioners or quacks and not for any immediate need of the machinery of Government. The public stand indebted to this farsighted legislation to their benevolent ruler, H.H. the Maharaja of Travancore and his able Dewan, Sir C. P. Ramaswami Iyer of outstanding administrative abilities and acumen.

Our Duty to Educate the Public

The whole difficulty is that most people have not been educated enough in what medicine can and cannot do and no attempts have been made to expose the claims of quacks. The average patient is mystified by the fake doctors on seeing their equipment of various machines and instruments. It is, therefore, increasingly necessary that members of our profession should make the public know how medicine operates, what can and what cannot be done. It has been well said that "until this information reaches more peoples, the quacks will continue to have a field day".

Promotion of Pharmaceutical Industry

According to figures collected by Dr. Mukerjee, Director of the Central Drug Research Institute, Lucknow, out of the total amount of about 20 crores of rupees spent by India in 1950–'51 on the Allopathic System of Medicine and accessories, about Rs. 12 crores were expended on foreign imports. It is evident from the above figures that we the members of the Allopathic profession are mainly responsible for the enormous drain of our wealth to foreign countries. I have on several occasions spoken on the need of stimulating the Pharmaceutical Industry in our country and also making her self-sufficient in the matter of drugs and medicinal preparations. We know to what serious difficulties we were put during the period of the last war and in the subsequent years for want of essential drugs. So long as all medicines, including the essential ones, are not manufactured in our country the Allopathic System of Medicine will not take root in the country, as the cost of imported drugs must necessarily be high. A poor country like India, cannot afford to give away 12 crores of rupees for the importation of foreign medicines. It is gratifying to note that the Pharmaceuticals and Drug Committee and the Malaria Chemo-therapy Committee of the Board of Scientific and Industrial Research, Government of India, have decided to promote Drug

Research in India at several centres like Bombay, Delhi, Calcutta and Madras. The Research in these centres would be integrated with the work of the Central Drug Research Institute, Lucknow.

But mere research alone will not be sufficient to stimulate the existing Pharmaceutical Industries or to encourage the starting of more such industries in different parts of the country. The reasons for the lag of progress in the Pharmaceutical Industry should be ascertained and proper steps taken to remove the obstacles in the way of their progress. The encouragement to Pharmaceutical Industries should be given not only by the Government but also by the members of our profession. If we prefer to prescribe imported patent and proprietory articles—Drugs and Medicines—for which we have corresponding reliable substitutes, how can we expect our industries to flourish? Do you not consider it your duty to prescribe the preparations manufactured by the Government Industrial and Testing Laboratory of Mysore in preference to those corresponding articles imported from elsewhere.

Japanese occupation during the last war of the Dutch East Indies, which is the source of nearly three quarters of India's quinine supply, has shown how abjectly we were dependent on the outside world for the drugs essential to fight our main enemy 'Malaria'. Our plight was all the more pitiable on account of shipping difficulties for import of drug supplies from Europe and other countries. Even though the war is over, we are still very dependent on overseas supplies. We can certainly make from the natural drugs available in this country suitable counter-parts of the standard preparations, which we import from the West.

We have to pay greater attention to what are known as "Vital Drugs". Lt.-Col. S S. Sokhey, ex-Director of Bombay Haffkine Institute, has stated clearly that "Two drugs could take care of three quarters of all the illness, that results in India." These two Drugs are 'Atebrin' and 'Sulphathiazole.' A doctor needs other forms of medicine also. But Col. Sokhey referred only to the major diseases–the more serious disease which account for three-quarters of our country's illnesses. These, he said, could be tackled with the two sets of tablets, 'Atebrin' and 'Sulphathiazole.'

We cannot be blind to the fact that imported drugs have been too expensive even for the economically average classes in India. Col. Sokhey stated 'one cannot tackle a plague epidemic with imported 'Sulphathiazole', if the cost of treating each patient is Rs. 7. If manufactured in India, the cost would be 12 annas a patient—a rate which even the poor Indian can afford to pay. The same statement holds good in the case of Malaria. Foreign-made Atebrin, which costs Rs. 2–3–0 for a single treatment, is beyond the reach of the great mass of the people. If it is manufactured in India, it will cost only 5 annas a treatment. One person out of every four in this country suffers from Malaria alone. Under such conditions is there any morality on the part of anybody to make private profits out of sickness? We must have a State-owned industry for the manufacture of essential drugs—Atebrin, Sulpha Drugs, Drugs to combat Syphilis, Kala-azar, Leprosy and the modern antibiotics—as Streptomycin, Penicillin, Aureomycin, etc. We congratulate the Government of India on their decision to start a Pencillin Factory.

I hope the importance of the Pharmaceutical Chemistry in the field of Medicine will receive due consideration. The scope and the importance of the Science of Pharmacy in the field of Industry and Medicine have not been fully realised in our country till recently. Purity and standards of Drugs and Medicinal preparations should be maintained by proper provisions under the Drug Control Act. The necessity for such an Act has long been felt by the members of our profession and we are indebted to the Central Government for the enactment.

PAEDIATRICS

Dehydrated banana in the dietetic management of diarrhœas of infancy.—J. H. Fries and associates (*Journal of Pediatrics*, 37 : 367, Sep. 1950) report the use of dehydrated banana flakes in the treatment of 20 infants under one year of age with diarrhœa of "nonspecific" origin. In all cases stool cultures for the common types of dysentery organisms were negative, and there was no indication for the administration of sulfonamides or any antibiotic. A group of 20 children with the same type of diarrhœa admitted to the hospital at approximately the same time and treated by the usual method was used as controls. It was found possible to give children the dehydrated banana during what is usually considered "the starvation period" in infantile diarrhœa ; this food was readily accepted by the infants at this time and caused no digestive disturbances. Of the 20 children receiving dehydrated banana, 16 showed a gain in weight during the acute phase of the illness, one maintained weight and only 3 lost weight ; while in the control group, only 7 showed a gain in weight, 9 lost weight and 3 maintained their weight. In the group treated with dehydrated banana, 17 were in good condition at the end of seventy-two hours (*i.e.*, with formed stools, three to four a day) ; while only 7 of the control group were in equally good condition at that time. The average time required for complete recovery was 2·9 days in the banana-treated group, and 5·02 days in the control group. The dehydrated banana has certain advantages over ripe banana, because dehydration reduces the moisture content to 5 per cent, giving high concentration of nutritive factors in small bulk, while its hygroscopic nature prevents loss of fluids by vomiting and fecal discharge. The results obtained in the cases reported indicate, in the authors' opinion, that the use of dehydrated banana flakes is the treatment of choice in nonspecific diarrhœas of infancy.—*Medical Times.*

Pertussis : clinical comparison of the newer antibiotics.—C. E. Booher and associates (*Journal of Pediatrics*, 38 : 411, April 1951) report a study of 166 cases of pertussis in children ; of these 111 were treated in the hospital with aureomycin, chloromycetin or terramycin ; comparison of the results in these 111 cases was made with a group treated with streptomycin and a control group not given any antibiotic. The results with streptomycin were "disappointing" ; the fever persisted twice as long as in the control group ; there was only a slight shortening of the whoop stage and no significant change in the duration of the cough stage. It was noted that although fairly large doses of streptomycin were used, there were no untoward reactions of sequelæ. Aureomycin, chloromycetin and terramycin were found to be of almost equal value in the treatment of pertussis. All these three antibiotics definitely shortened the duration of the whoop stage of the disease by about 60 per cent. This is of special importance because it is in this stage that "the most severe damage" caused by pertussis occurs. The average duration of fever was definitely diminished by chloromycetin and terramycin, and the cough stage was slightly shortened by these two antibiotics, but this was not considered significant. The total duration of the disease (from the onset of catarrhal symptoms before admission to the hospital) was definitely shortened by all three antibiotics, but the period of hospitalization was not significantly reduced. The effect of aureomycin, chloromycetin and terramycin was not as rapid as has been reported by others, but this is attributed to the fact that a slightly smaller dosage was used in the authors' series. The minimum effective dose for these antibiotics was found to be 50 mg. per kg. daily ; very few signs of intolerance

were noted with this dosage. While aureomycin, chloromycetin and terramycin are of definite value in the treatment of pertussis, the authors are of the opinion that "the specific drug for the complete and successful treatment" of this disease has not yet been found.—*Medical Times.*

OTOLOGY

Chronic exudative otitis externa.—J. P. Steward (*Journal of Laryngology and Otology*, 65:24, Jan. 1951) reports the bacteriological study of 126 ears with exudative otitis externa in comparison with 104 healthy ears. In the latter group, no organisms were found in 34 ears; in the remainder *Staphylococcus aureus* was the predominating organism. In the ears with otitis externa, staphylococci were not frequently found. Proteus organisms, *B. pyocyaneus* and *B. coli*, were most frequently present. Local treatment with streptomycin ointment (125 mg. streptomycin per 1 gm.) was tried in 54 cases, only 18 of which cleared up; of 28 cases treated with penicillin ointment, only 4 cleared up. A severe local reaction was observed in several cases treated with the streptomycin ointment, but more frequently with penicillin ointment. No relationship was observed between the organisms found in otitis externa and the results of treatment with the antibiotics. From the type of organisms found in the bacteriological study, better results were expected, especially with streptomycin therapy. The sulphonamides were used in 31 cases in this series, and results are reported for an additional 103 cases treated with the sulphonamides at a British Army General Hospital, making a total of 134 cases. Sulphathiazole, (M. and B.) or a mixture of the two was employed in an emulsion (25 per cent). Sulphathiazole was used in 99 of these cases with 38 cures; with M. and B. there were 39 cures in 56 cases; with a mixture of the two, there were 21 cures in 29 cases. Of the total series of 134 cases treated with the sulphonamides, there were 98 cures and 36 failures. Another group of 43 cases was treated with ultra-violet irradiation with a Kromayer lamp and special ear applicators; a minimum of 30 seconds was used for the first treatment, and this was later increased; 30 of the 43 cases treated by this method cleared up. All these methods of treatment were used only in the first stage to kill the pathogenic bacteria, dry up the discharge, and promote exfoliation of the diseased epithelium. In the second stage healing is promoted by the application of soothing and mildly antiseptic ointments.—*Medical Times.*

Therapeutic and toxic effects of streptomycin in otology.—L. Ruedi (*Laryngoscope*, 61:613, July 1951) reports the treatment of 101 cases of tuberculous otitis media with streptomycin at Davos, Switzerland. In about 50 per cent of these cases the first symptom of involvement of the ear was a severe ear-ache, followed in a few days by discharge of a creamy pus and other symptoms characteristic of tuberculous otitis media. These symptoms include a single perforation of the tympanic membrane growing rapidly, with yellow spots often visible in intact portions of the membrane, and rapidly progressing deafness with evidence of impairment of both conduction and perception. At first the nerve deafness may be more pronounced than middle-ear deafness, probably due to irritation of the labyrinth by tuberculotoxins, but as the middle ear disease progresses, the impairment of sound conduction becomes more severe, sometimes resulting in total deafness. In about 50 per cent of the author's cases, tubercle bacilli could not be demonstrated in the ear discharge, but the diagnosis of tuberculous otitis media was made on the basis of the clinical symptoms and streptomycin treatment was instituted immediately. In these 101 cases, local streptomycin therapy was employed. For this local treatment, the external auditory canal, the tympanic membrane perforation and the tympanic cavity are cleaned and the streptomycin in the form of an aerosol is sprayed into

the middle ear at least once daily for weeks, or in some cases, for months. In 94 of the 101 cases definite improvement resulted from this treatment; the ear discharge ceased in one to three weeks; if it recurred it could be promptly arrested again by a second and third course of local streptomycin therapy. When the discharge ceased, there was no further destruction of the tympanic membrane or of the ossicles; and no further mastoid complications. In a few cases, a slight improvement in hearing was noted, but as a rule, the hearing loss present at the beginning of treatment remained without change; in no case did the hearing become worse. The toxic effect of streptomycin on the vestibular apparatus and the ear has been more widely recognized than the therapeutic value of the antibiotic in tuberculous otitis media, but the author is of the opinion that damage to these structures can be avoided in most cases by adjusting the dosage of streptomycin to the weight of the patient; the daily dose should not exceed 24 mg. per kg. body weight; dihydrostreptomycin is also less toxic than streptomycin. Experiments on guinea pigs, given toxic doses of streptomycin, showed degeneration of sensory cells in the peripheral vestibular apparatus and loss of sensory hairs; and varying degrees of damage to the organ of Corti. These findings agree with those of others using different experimental animals. Because of the nature of the damage to the peripheral vestibular apparatus, others have reported the use of streptomycin in the treatment of Meniere's disease for the relief of vertigo. The author has treated several cases of Meniere's disease with streptomycin, 3 of which he reports in detail. In one of these 3 cases, streptomycin treatment was instituted during an early attack of severe vertigo, before there was any impairment of hearing; a dosage of 2 Gm. of streptomycin daily for four days controlled the symptoms and the patient has been free from attacks for three months. In the other cases of Meniere's disease treated, small doses were employed and treatment was discontinued when symptoms were relieved.—*Medical Times.*

OBSTETRICS AND GYNÆCOLOGY

Caesarean section: Indications, advantages and risks.—Bertil Olow, Karlskoga, Sweden. *Acta obst. et gynec.*, Scandinav, 30:471-80, 1950.

The danger of abdominal cæsarean section was earlier so great that the indications for the intervention were kept very strict. In view of the advances in surgery with regard to combating infection and shock and also in preventing thrombosis and embolism, these risks have become decreased to the point that an abdominal caesarean section from the point of view of the mother may be favourable compared with and substituted for interventions dangerous for the fœtus, such as high forceps, cranioclasia, internal corrections, and difficult breech extractions.

Even in cases of nephropathy and eclampsia, where the symptoms of toxicosis in most cases disappear as soon as delivery has taken place, it should be justifiable under certain circumstances to terminate the pregnancy by help of abdominal caesarean section.

Bleeding and protracted gestation are briefly discussed as indications of abdominal caesarean section.

The author presents 100 cases of abdominal caesarean section from the surgical department of Karlskoga General Hospital, Sweden. During the same time there had been 4,400 normal deliveries and 83 low forceps. The frequency of caesarean section is thus 2·2 per cent. Maternal mortality is 3 per cent, 2 mothers dying in grave eclampsia where the outcome, with certainty, would have been the same irrespective of the operation. The fetal mortality was 15·5 per cent, 10·7 per cent being prematures.

The methods of operation followed were:—

(1) transverse isthmic incision, 68 cases; (2) longitudinal incision in corpus-isthmus, 20 cases; (3) extraperitoneal transverse incision, 8 cases; and (4) classic incision, 4 cases.

Only two methods of anæsthesia were used, ether on open mask or heavy spinal anæsthesia. The experiences with the latter type of anæsthesia are good, and it has been used in 67 cases without any complications. The average post-operative period of hospitalization was 13·5 days.—*Author's Abstract.—Quarterly Review of Obstetrics and Gynaecology.*

Cardiac disease in pregnancy.—*J. A. M. A.*, 7 7-'51 and *Med. Rev.*, March 1952.

The management of the pregnant woman with heart disease should begin long before the onset of gestation. Marriage and pregnancy call for a re-assessment of the functional capacity of the heart. The importance of the rest in bed for atleast one or two hours in the afternoons, during pregnancy should be stressed and the patient encouraged to feel at ease and rest. Fitzgerald *et al do not agree* with the contention advanced by some writers *that caesarean section is less risky to the damaged heart* than a well-managed normal labour. Pregnant women with heart disease are exceedingly poor surgical risks according to these authors, and so sepsis must be guarded against after confinement.

Cardiac disease in pregnancy.—*S.A. Med. Jour.*, 17-11-'51 and *Med. Rev.*, March '52.

Patients with auricular fibrillation or heart failure past or present, are strongly advised by Norman against pregnancy and if already pregnant and if seen within the first trimester termination is recommended. The risk of cardiac failure is otherwise great.

Salt retention plays a most important part in pregnant patients with heart disease, particularly in those confined to bed and it is a common cause in precipitating heart failure. Also, these *patients should never be transfused*, for increase of blood volume may easily start acute pulmonary œdema or a sudden failure of the right heart. The early premonitory signs of cardiac failure should therefore, be carefully looked for.

Therapeutic effect of subsequent pregnancy in Simmond's disease. Case Report.—(*J. Obst. Gynaec. Br. Emp.*, *58*, 18—21, Feb. 1951).

Murdoch and Govan have reported the case of a multipara who developed Simmond's disease, following a post-partum hæmorrhage after the birth of her fourth child, (fifth pregnancy). She was hospitalized and a diagnosis of Simmond's disease was made, based on the following signs and symptoms:—absence of lactation, amenorrhœa, weakness, lassitude, feeling of cold, loss of libido, wasting, bradycardia, low blood pressure, atrophy of the genitalia, loss of hair, increased reactivity to insulin and diminution in the steroids in urine.

Treatment was started with 2 injections of 1000 units of serum Gonadotrophin followed by 100 units of chorionic gonadotrophin everyday for 4 days. This treatment was repeated by giving another similar course six months later. Slow but steady improvement was noticed; menstruation returned but was scanty. She ceased attending hospital.

Four years later, she came again for confinement in her sixth pregnancy. This confinement was quite normal, but was followed by absence of lactation as after the fifth pregnancy referred to above. Her general condition had greatly improved after the sixth pregnancy and her symptoms and signs had disappeared. She was menstruating normally, the libido had returned and she was later able to suckle her child quite normally.

Early ambulation in obstetrics and gynæcology.—*Lancet*, 6-10-'51, Abst. in *J.A.M.A.*, 19-1-'52.

Early ambulation was practised in 1,070 consecutive obstetric cases, in 28 cases of cæsarean section, and in 285 cases in which major abdominal and vaginal operations were performed. The

patients were allowed to get up usually within 24 hours of, and not later than 36 hours, after delivery or operation. This seemed to be beneficial to them and no untoward complications occurred. There was no morbidity in private puerperal cases and the morbidity in the hospital puerperal cases was 0·4%, which is extremely low for a hospital admitting both emergency and scheduled cases. Early ambulation did not interfere with the healing of the perinæum, and involution seemed to be accelerated. The presence of red lochia may possibly be prolonged. In cases of pelvic-floor repair, healing was not hindered by early ambulation, and catheterization was needed far less often. Sickness, flatulence, and distention seemed to be relieved. The decrease in use of bedpans was appreciated by both patient and nurse. Though early ambulation is advocated for hospitalized puerperal women it may be contraindicated for obstetrical patients in their homes. In the hospital, the fact that the patient is allowed up early should not shorten her hospitalization during the puerperium; she needs rest, supervision, and freedom from household worries, which could not be obtained at home. In hospital early ambulation seems to be beneficial, not only to the puerperal patient but even more so to the patient who has undergone a major operation.

The indications for cæsarean section.—(Arthure H. G. E., *Med. Press*, 5-3-1952).

The indications for cæsarean section could be discussed under two heads, maternal and fœtal, but naturally the condition of both mother and child must be considered when deciding on the method of delivery. The hospital records of the Queen Charlotte Maternity Hospital, London, showed a great variety of indications and a frequency of multiple indications in many cases. They are briefly discussed below:—

1. *Cephalo-pelvic disproportion* is the commonest indication for cæsarean section. Although gross pelvic deformity is not common, there is a tendency to do cæsarean section more readily in moderate or minor degrees of disproportion. This tendency can be justified only if it increases maternal and infant safety. Elective cæsarean section before onset of labour is necessary for major disproportion confirmed by X-ray. It is also justifiable for border-line cases where there were previous still births and difficult labours or in elderly primigravida or with a breech presentation resisting version. Other border-line cases should be treated by trial labour, cæsarean section being performed *only* where there is fœtal distress or where labour is not progressing satisfactorily. Normal uterine action has been known to overcome considerable disproportion. Border line cases of outlet disproportion will if submitted to trial labour, end in vaginal delivery easy or difficult.

Malpresentations *e.g.*, breech, transverse lie, or face presentation will need cæsarean section if there is also true pelvic contraction. With a normal pelvis, vaginal delivery is to be perferred. Cæsarean section is probably safer for the mother in a neglected shoulder presentation, than decapitation.

2. *Uterine inertia*:—When uterine inertia accompanies cephalo-pelvic disproportion, section may be necessary. Cæsarean section for uterine inertia *alone* should be regarded as a confession of failure in the treatment of a prolonged first stage of labour. If a prolonged labour ending in a cæsarean section is to be avoided, the nature and cause of hypertonic inertia must be clearly recognized, as they may be remediable. The physiological effect of fear acting *via* the autonomic nervous system may often cause an increased tone or spasm in the lower uterine segment; upper segment contractions are frequent and of short duration, but cannot cause dilatation of cervix because of the spasm in the lower segment. Unfortunately we cannot always prevent the occurrence of hypertonic uterine inertia, but it is always possible to break the vicious circle by the relief of pain. If the pain is properly controlled by adequate doses of analgesic drugs or caudal analgesia in selected cases normal uterine action returns and dilates the cervix. Cæsarean section will then become unnecessary.

3. *Ante-partum haemorrhage*:—Placenta prævia is now being treated by

cæsarean section much more frequently than before. The maternal mortality for placenta prævia has been greatly reduced by hospitalisation, blood transfusion and cæsarean section. Vaginal delivery in placenta prævia causes the risk of losing the baby from asphyxia during labour. The indication for cæsarean section should be palpation of the placenta through the cervix. Even so rupture of the membranes and vaginal delivery is preferable in marginal or lateral plecenta prævia, when the presenting part is deeply engaged and the cervix well taken up. In these circumstances a rapid and easy labour may be anticipated with little or no risk to the fœtus. There is less justification for performing cæsarean section in accidental ante-partum hæmorrhage whether accompanied by toxæmia or not. Conservative treatment and vaginal delivery constitute less risk to the mother. When there is fœtal distress, cæsarean section may be considered.

4. *Toxaemia of pregnancy*:—Though cæsarean section is not infrequently performed in this condition it is wiser to resort to a straightforward vaginal delivery unless signs of fœtal distress are present. Pre-eclamptic patients may have to be treated by cæsarean section *only* when complications supervene and interfere with normal delivery.

5. *General maternal indications*:—Heart disease, essential hypertension, and chronic nephritis, greatly increase operative risk and could be regarded as contra-indications, except in the presence of other obstetric complications. Cæsarean section has been advocated in diabetics, to avoid intra-uterine death of fœtus during the last few weeks of pregnancy; premature induction of labour must, however, be considered a safer alternative for the mother.

6. *Uterine and ovarian tumours*:—Section is occasionally necessary when a cervical fibroid or a tumour in the pouch of Douglas actually obstructs delivery. The operation may be performed also to allow simultaneous removal of an ovarian cyst or fibroids which are not likely to cause obstructed labour. If tumour is benign, section may be postponed till a few weeks or months after delivery. The hazards of myomectomy are greatly increased by the vascularity of the pregnant uterus, and a cæsarean hysterectomy may prove risky. Immediate termination of the pregnancy followed by irradiation would be a safer procedure and a Wertheim's hysterectomy may be done later if the growth does not respond to radium.

7. *Foetal indications*:—Fœtal distress is the most frequent and most important indication, and is also the determining factor in uterine inertia, disproportion, ante-partum hæmorrhage and toxæmia of pregnancy. Infarction or degeneration of the placenta, placenta prævia, or compression of the umbilical cord may also produce fœtal distress. Signs of fœtal distress are occasionally noticed early in labour or even before onset of labour. If in such cases, irregularity and slowing of the fœtal heart persist for over an hour, section should be done. In labour, the passage of meconium or meconium-stained liquor is always a sign of fœtal distress, unless fœtus presents by the breech. As meconium may be passed for a considerable time even with a vertex presentation with no other sign of fœtal distress, a cæsarean section should, as a general rule, be considered for fœtal distress when there is irregularity or slowing of the fœtal heart rate.

Treatment of threatened abortion.—John Stallworthy, F.R.C.S. (from *The Practitioner*, February 1951).

The usual sign of a threatened abortion is slight painless bleeding during the first twelve weeks of pregnancy. It is true that abortion can occur after this, but when it happens in the middle trimester it is commonly associated either with hydatidiform mole formation or the development of a major degree of placenta praevia. With these conditions the bleeding tends to be more severe, recurrent, and prolonged.

Occasionally, during the first twelve weeks, bleeding is severe and even prolonged, without loss of the ovum, but these cases require special consideration, and ideally should not be treated at home. The chance of the ovum being defective is increased in this group, but

prolonged bleeding can be followed by the birth of a normal fœtus.

Pain is not usually a feature of threatened abortion, but in some cases it is the only symptom. Characteristically its site is in the midline of hypogastrium, and although it may persist as a dull ache it is more typically intermittent and colicky, being due to increased uterine contractions. This is the way in which an abortion caused by emotional factors usually begins.

The fundamental principle in the treatment of threatened abortion is to *prevent it from becoming inevitable*. This involves immediate measures, but often necessitates taking precautions at a later stage to minimise the risk of trouble recurring. The importance of prophylaxis should not be forgotten, and it is true to say that if every pregnant woman in the early weeks of pregnancy were given the advice to which she is entitled there would be fewer abortions.

Prophylactic treatment:—The pregnant uterus tends to be more irritable during the first twelve to fourteen weeks of gestation than during the later stages. This irritability is more marked at the time of the first three suppressed periods and is almost certainly due to a combination of hormonal and autonomic nervous factors. Powerful contractions sufficient to dislodge the developing ovum can be initiated by stimuli which at other times would produce no noticeable effect. For example, the fatigue and motion of long journeys by car may produce pains and bleeding. Intercourse, excessive purgation, or even gross constipation can start trouble.

Within reasonable limits, the more normal a life a pregnant woman leads the better, but she should be aware of the dangers outlined above and be given some guidance on what to avoid. Particularly is this important if there is a history of abortion occurring in previous pregnancies, or if the existing gestation has already been threatened. In such circumstances it is wise for the patient to so arrange her domestic and social engagements that she can rest in bed, if necessary, during the weeks of the first four suppressed periods.

Immediate treatment:—One method of treatment concerning which there is little dispute is rest in bed. At the first warning of hæmorrhage or pain, the more physical and mental rest a patient can get the less likelihood there is of the condition progressing. In general practice this sometimes means that for adequate rest to be assured the patient must be transferred from her own home (where the lack of help and the demands of children make rest impossible), either to hospital or to the home of relatives or friends.

Mental rest is promoted by the action of *sedatives*. Morphine is the drug in popular use, but it should be remembered that there is experimental evidence to suggest that in small doses it may promote increased activity of unstriped muscles. For that reason, if morphine is given, a dose of ¼ grain (16 mg.) is preferable to 1/6th grain (11 mg.). A sedative should certainly be administered at least half an hour before transferring the patient. Barbiturates, such as medinal, 10 grains (0·6 g.) by mouth, or phenobarbitone, 3 grains (0·2 g.) by intramuscular injection, are an excellent substitute for morphine. If pain is more a feature than hæmorrhage the aim of treatment is to promote uterine relaxation, and this can be done by giving glyceryl trinitrate, 1/100 grain (0·65 mg.) by mouth, four hourly if necessary. This drug is excellent in combination with phenobarbitone, 2 or 3 grains (0·13 or 0·2 g.) by mouth.

An important negative aspect of treatment is the *avoidance of vaginal examination and manipulation*. Many a threatened abortion is converted into an inevitable one by over-zealous attempts to confirm or dispel the provisional diagnosis by examining the pelvis. It is true that without this examination errors of diagnosis may be made. The patient may not be pregnant but suffering from a hormonal dysfunction, or the abortion may already be inevitable; but in either case the correct state of affairs will be manifest with little delay even if a pelvic examination is not made. If the provisional diagnosis of threatened abortion is correct, the chances of the pregnancy continuing

will be increased by not examining the pelvis. For those who ignore this advice a further suggestion may be made. If you *must* examine the pelvis, then remember that all you need to feel is the cervix. Bimanual palpation of the uterine body or attempts to elicit Hegar's sign can be as effective in terminating a pregnancy as the abortionist's curette. If the cervical canal is closed it is reasonable to assume that the abortion is still only threatened. Conversely, if it is open and fœtal products can be felt in the canal, then the abortion must be considered inevitable, although cases have been recorded in which, in spite of this sign, pregnancy has been carried successfully to term by keeping the patient in bed for the remainder of her antenatal period. If the examining fingers discover that the uterus is retroverted they should resist the temptation to manipulate it into an anteverted position. *The less done to the body of the uterus during the stage of a threatened abortion the better for the safety of the ovum.*

Furthermore, it is wiser to leave the retroverted gravid uterus to correct itself, even when the immediate danger of threatened abortion is over. Usually at the stage of twelve to fourteen week's gestation (although it may be as early as the 10th week in a multiple pregnancy) the uterus will rise spontaneously into the abdomen. In the exceptional cases, in which incarceration occurs with resultant acute retention of urine, if the bladder is kept empty by a catheter for twenty-four to forty-eight hours, the retroversion corrects itself with much less risk of disturbing the fœtus than if the same result is obtained by vaginal manipulation.

Due notice should be taken of the fact that retroversion was present during the early weeks of pregnancy, so that extra care can be given, if necessary, in the puerperium. If the uterus is retroverted two or three weeks after delivery it should be gently manipulated into good position, and maintained there by a Hodge pessary for the next two months.

Hormone therapy.—Having reassured the patient, given an initial sedative, and confined her to bed, the next problem to settle is whether to use any of the hormone preparations. There is now considerable literature on the use of progesterone in these cases and, although authorities differ on many points, there is a general agreement that whatever else may be said of its use, small doses, such as 5 mg. of progesterone, are ineffective and a waste of money. It is probable that in more adequate doses it is more effective under some conditions than others, and according to Bender it is indicated when there is a deficient secretion of progesterone by the corpus luteum. This deficiency is estimated by a low urinary excretion of pregnanediol; this is one of the end-products of the metabolism of progesterone. It will be obvious that whether this belief be correct or not, it can make little difference to the treatment of threatened abortion in general practice. If the hormone can help to prevent abortion from becoming inevitable it should be given when the patient is first seen. At the present time the weight of clinical evidence is in favour of this procedure. If its administration were withheld until the report was received on the level of pregnanediol excretion, valuable time would be lost. Moreover, the facilities for making this estimation are not generally available, and when they are, the investigation is tedious, expensive, and not remarkably accurate, and there is some difference of opinion concerning the clinical significance of the results obtained. Therefore as a practical measure, if progesterone is to be used at all in general practice in the treatment of threatened abortion, it should be administered in all cases. An initial dose of 20 mg. of progesterone or a comparable product* given intramuscularly, should be adequate, followed by 10 mg. daily.

Oral preparations of the hormone are now available, and after the first injection these can be given to save further daily visits and injections: "ethisterone", or other oral preparations such as "progesterol" or "gestonerol"; 20 to

* "Progestin", "proluton", "lutocyclin", "gestone", "luteostab" and "lutren", are some of the commercial products available.

30 mg. daily, is the suggested dose. A convenient way of administering the hormone, when facilities for using it are available, is to implant a sterile pellet of progesterone, 100 mg., into the gluteal muscle.

The patient is anæsthetized with intravenous thiopentone, and with due antiseptic and aseptic precautions a small trocar and cannula are inserted deep into the muscle in the upper and outer quadrant of the gluteal region. The trocar is withdrawn, the pellet inserted through the cannula, and the trocar replaced before withdrawing the instrument and leaving the pellet deeply implanted.

This method has the advantage of avoiding repeated injections or the daily administration of tablets, but it is obvious that it is best suited for hospital practice.

The question is usually asked, how long a patient should be kept in bed and for what length of time the hormone should be administered. Complete rest is essential during the phase of bright bleeding, and preferably for a week after this has ceased. If the loss has been slight and there is no pain, it is reasonable to allow the patient to get out of bed to visit the toilet two to three days after bleeding stops. She should be warned that there will probably be some dark brown discharge for some days and that this may well increase when she gets up. The reason for this is that bleeding is arrested by the formation of intra-uterine clot at the site of hæmorrhage, and when this clot is absorbed part of it liquefies and produces a dark discharge. It has no serious significance and can be ignored so long as there is no associated bright loss. If this occurs, the period of rest is extended.

In the same way, progesterone or an allied preparation should be administered throughout the period of rest, and preferably in decreasing doses for several weeks after the patient is again active. An oral preparation such as "ethisterone", in doses of 10 to 20 mg. daily, is a convenient, although expensive, way of doing this. Once gestation has advanced to the stage of sixteen weeks, by which time the placenta has largely taken over the hormone control of the pregnancy, there is no longer the need to give additional hormones.

In discussing hormone therapy for threatened abortion mention must be made of the more recent development of giving oestrogens, concerning which there is even more conflict of opinion than there has been over the use of progesterone. It may well be that further research will prove that oestrogens, either alone or in combination with progestrone, are of value, but no conclusive proof of this has yet been produced. Until further evidence is available from carefully controlled series, the use of stilboestrol and similar oestrogenic preparation is *not* advised in the general treatment of threatened abortion.

PROGNOSIS :—When abortion has threatened, many patients are fearful lest the fœtus be damaged. They should be reassured. If the pregnancy continues, the infant will not be affected by the threatened abortion.

Although it is true that abortion is common in association with defective ova, this fact is not a justification for failing to treat threatened abortion adequately. In practice, fœtal malformations are found after the most normal of pregnancies, and conversely, healthy babies are delivered after prolonged and recurring bleeding, not only during the early weeks of gestation, but sometimes throughout the entire pregenancy. None the less, there is ample evidence to show that the incidence of disordered development of the fœtus is high in abortion. This fact causes some doctors great anxiety when they are asked to treat a case of threatened abortion, lest the treatment they give should be responsible for prolonging a pregnancy which would be better terminated. *There is little justification for this anxiety.* Available evidence suggests that the chance of a threatened abortion being arrested, whatever treatment is given, is small if the fœtus is seriously defective. Moreover, in these cases the abortion often progresses rapidly and the question of treating it in the early stage does not arise.—(*The General Practitioner*, Dec. 15, 1951).

OPHTHALMOLOGY

Retinal changes in coarctation of aorta.—*(Diagnostic Sign).* (*The Lancet* of 2-6-1951, Annotation, p. 1220).

A sign that may help in the diagnosis of coarctation of the aorta has lately been described by Granstrom. (*Br. Jour. Ophthalmol.*, 35, 143, 1951). Of 40 patients with coarctation of the aorta who were referred to him for routine fundus examination, 24 had increased tortuosity of the retinal arteries. This tortuosity was widespread but sometimes it was confined to isolated sectors. In extreme instances it amounted to cork-screwing of the arterial loops some of which were embedded in retinal tissue; in others it was less pronounced but "sufficient in degree to be characteristic". This abnormality was more usual in patients over the age of 25, and it was unaffected by operation for the coarctation. Associated changes in arterial calibre and at the areteriovenous crossings were at the most slight; and hæmorrhages and exudates were totally absent. The veins (unlike those in congenital tortuosity of the retinal vessels) showed no undue tortuosity. Granstrom associates this sign with the generalised coiling of the arteries of the upper half of the body often found in coarctation. Since a certain amount of increased tortuosity is not uncommon in normal fundi, it may be difficult to decide when the change is pathological. Of Granstrom's 24 cases in which the sign was present, seven had "marked cork-screw tortuosity" and seventeen had "slight but unmistakable changes."

MEDICINE AND THERAPEUTICS

New dosage schedule of penicillin in the treatment of syphilis.—The following schedule for the dosages of penicillin in the treatment of syphilis was developed and prepared by the National Research Council, Subcommittee on Venereal Diseases, and is recommended by the Antibiotics Division of the Food and Drug Administration. The information below was released by the Food and Drug Administration under the date of September 13, 1951.

The value of parenteral preparations of penicillin for the treatment of syphilis is well established. Accumulated evidence indicates that the minimal effective dosage of penicillin for the treatment of primary and secondary syphilis is approximately, 2,400,000 units. This total dosage of penicillin should be administered so as to produce a measurable concentration in the blood for a total minimum period of four to eight days. Although the currently recommended treatment schedules extend over a longer period of time and employ somewhat larger amounts of penicillin, these may be reduced in the light of future experience.

Primary and secondary syphilis in adults

Procaine penicillin in oil with 2% aluminum monostearate:—600,000 units (2 cc.) intramuscularly every forty-eight or seventy-two hours for six injections (total dose, 3,600,000 units).

Procaine penicillin in aqueous suspension:—600,000 units (2 cc.) intramuscularly every twenty-four hours for eight injections (total dose, 4,800,000 units).

Crystalline penicillin in aqueous solution:—50,000 units intramuscularly every three hours, eight times daily for eight days (total dose, 3,200,000 units).

Latent syphilis

The use of penicillin in latent syphilis is based on the assumption that, since the drug is effective in the early symptomatic stages of the disease, its administration in latent cases may be expected to prevent the development of clinical manifestations of the disease. The treatment schedules recommended are the same as in primary and secondary syphilis.

Asymptomatic neurosyphilis; cardiovascular, benign, late, and visceral syphilis

The optimum dosage of penicillin and the ultimate outcome of therapy have

not been determined in these stages of the disease. The following minimum dosage schedules are recommended, however, on the basis of information available at present :

Crystalline penicillin in aqueous solution.—100,000 units intramuscularly every three hours, eight times daily for twelve days (total dose, 9,600,000 units).

Procaine penicillin in aqueous suspension.—900,000 units (3 cc.) intramuscularly every twenty-four hours for twelve injections (total dose, 10,800,000 units).

Procaine penicillin in oil with 2 per cent aluminum monostearate.—900,000 units (3 cc.) intramuscularly every forty-eight or seventy-two hours for twelve injections (total dose, 10,800,000 units).

Symptomatic neurosyphilis and ocular syphilis

Specific dosage schedules for penicillin cannot be recommended at this time. In general, crystalline penicillin in aqueous solution appears to be the drug of choice and should be given at three hour intervals over a long period of time (twelve to twenty days) and in relatively large total doses (9,600,000 to 15,000,000 units). The necessity for adjunct fever therapy in these cases, particularly in patients with general paresis and optic atrophy, is still to be determined.

Syphilis in pregnancy

The dosage schedules advised for primary and secondary syphilis will usually prevent congenital infection and are recommended for the treatment of syphilis in pregnancy. Larger doses of penicillin are recommended, however, in pregnant women with early untreated syphilis in whom therapy is begun after the seventh month of pregnancy. Such patients should receive crystalline penicillin in aqueous solution or procaine penicillin in aqueous suspension in the dosage schedules advised for the treatment of symptomatic neurosyphilis and cardiovascular syphilis.

Infantile congenital syphilis

Crystalline penicillin in aqueous solution :—Total dosage of approximately 200,000 units per kilogram of body weight, given in equally divided doses every three hours, day and night, over a period of ten days—*e.g.*, in a newborn infant, 8,000 units per injection.

Procaine penicillin in aqueous suspension :—150,000 units (0·5 cc.) intramuscularly every twenty-four hours for eight injections (total dose. 1,200,000 units).

Additional treatment schedules may be found in the article entitled "Penicillin Treatment of Syphilis", which appeared in the *Journal of the American Medical Association*, 145 : 1223, 1951.—(*Physician's Bulletin*, March–April '52).

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Panparnit in the treatment of parkinsonism.—Panparnit (diethyl-amino-ethyl-l-phenylcyclopentane-l-carboxylate hydrochloride) was used in the treatment of Parkinson's disease. The drug was given by mouth in one of two ways ; if the patient had had relatively mild symptoms his usual medication was stopped and panparnit was instituted but in more severe cases the usual medication was gradually reduced over a period of 3 or 4 days while the dosage of panparnit was increased. In either case the dosage of the drug was 12·5 mg. every 3 hours during the first day, alternated with 25 mg. doses the second day, given 25 mg. every 3 hours the 3rd day, and followed with similar increments until the patient showed definite evidence of overdosage as indicated by dizziness, nausea, "light" feeling, or other symptoms. Then the dosage level was decreased until no further toxic symptoms were noted. The dosage ranged from 90 to 600 mg. a day given in divided doses. In a few cases, when there was evidence that the effect did not last for 3 hours, drug was given every 2 hours. Writing in *J.A.M.A.*, [139:629 (1949).] Schwab and Leigh stated that the degree of improvement among the 50 patients in the series was usually about 25 per cent and that the drug was superior to other previous medication in about 65 per cent of the patients. The most reliable indication of improvement was the report of relatives and patients on an increased ability to perform the usual chores of life.—*Medical Times*, October, 1950),

Chloromycetin therapy in chronic ulcerative colitis.—X. T. Bercowitz (*New York State Journal of Medicine*, 50 : 2057, Sept. 1, 1950) reports the treatment of 24 cases of ulcerative colitis with chloromycetin. It was found that 3 gm. of chloromycetin daily was the most effective dose. There were no serious reactions observed with this dosage ; some patients noted mild nausea, or occasional giddiness ; some developed a maculopapular rash ; all the symptoms disappeared when the drug was discontinued. In 13 of the 24 cases, there was marked improvement, with rapid diminution of the number of bowel movements, stools becoming normal in consistency without blood or mucus, and relief of abdominal discomfort. In these patients the intestinal mucosa had an essentially normal appearance on sigmoidoscopic examination. In 3 cases there was moderate improvement, and in 8 cases no essential improvement, although there was some favourable response to treatment at first, which was only temporary. In case of relapse in patients who showed definite improvement, prompt treatment with chloromycetin resulted in rapid improvement, and in no case was the relapse as severe as the original disease. It was found better after the initial period of treatment with chloromycetin to employ an "interrupted schedule" with short courses of treatment. Patients who responded favourably to the initial course of treatment continued to improve for some time after treatment was discontinued. —*Medical Times.*

Treatment of œdema in disease of the kidney.—H. H. Boyle and L. B. Jackson (*American Journal of Diseases of Children*, 70:272, Feb. 1950) describe a treatment used for the relief of œdema in 15 children with nephrosis or chronic nephritis. This included an acid-ash regimen, liberal use of fluids and restriction of sodium chloride. About 50 cc. of fluid per pound (0·5 kg.) body weight were given daily ; this averaged 1,500 to 2,000 cc. given by mouth when possible. In some cases, in which the children would not take such a large amount of fluid, an intranasal Levin tube was used for a time with intranasal feedings ; occasionally 5 per cent dextrose solution in distilled water was given intravenously. The purpose of the high fluid intake was to facilitate the elimination of the mobilized sodium ion. The administration of acid drugs and the acid-ash dietary regimen were employed to aid mobilization of the sodium ion from the alkaline medium of the tissue interspaces. As it was found that children did not tolerate ammonium chloride well, potassium chloride was given in a glycyrrhiza syrup ; dilute hydrochloric acid (U.S.P.) was also given, five drops in a glass of water three to four times a day. The diet included acid fruit juices, not yielding an excess of alkaline ash—such as cranberry, plum and prune juice—and acid-ash, high protein foods, chiefly chicken, meat, fish, eggs and cereals. Sodium chloride was restricted to 1 to 2 gm. daily. Children with nephrosis responded better to this therapy than those with chronic nephritis. All of the 5 children with nephrosis were entirely or partially cleared of œdema : and 3 of these children have been followed up through the clinic as free from œdema for eighteen months. Three of the children with chronic nephritis did not respond to this or any other form of therapy. In the other cases, with the regimen described, the œdema fluid shifted from the face and extremities to serous cavities, especially the peritoneal cavity ; by removal of ascitic fluid by paracentesis the child could be made more comfortable. Seven of the children with chronic nephritis died within a year after the onset of œdema; autopsy on 6 of the patients showed characteristic changes of chronic or subacute nephritis. This method of treatment is not a cure for nephrosis or chronic nephritis, but it controls the œdema more effectively than other regimens employed and makes the patient more comfortable.—*Medical Times.*

Mepacrine and lupus erythematosus.—(*Postgraduate Med. Jour.*, Jan. 1952, pp. 2-3).

A chance observation, led Page to use *mepacrine* in a case of chronic discoid lupus erythematosus who had been treated by the usual method for 2 years without any significant change. There

was a dramatic improvement with complete disappearance of slight lesions and a vast improvement in extensive ones. 18 cases have been treated and only one has failed to improve. 9 showed excellent, 6 good, and 2 slight improvement. Page finds the degree of improvement to be related to the degree of skin staining produced by the drug. He gives 300 mg. daily until the skin is stained and then 100 mg. daily as a maintenance dose. The duration of treatment has varied between 6 to 12 weeks. Toxic effects have not been troublesome and mild reactions are not an indication for stopping the treatment. One case of acute disseminated lupus erythematosus showed very rapid improvement and in a chronic case with rheumatoid arthritis, the joints became normal in 4 months though the skin lesions did not improve very much.

Mepacrine probably acts by reducing the light sensitivity of the skin, by an action similar to that of ACTH or cortisone, or by antagonizing the adenyl compound usually found in the lesions of lupus erythematosus. These results are definitely encouraging. Whether *mepacrine* cures the disease or controls the lesions has yet to be decided.

The treatment of epilepsy.—Frederic A. Gibbs, M.D. (From "*The Journal of the Michigan State Medical Society*", February, 1951).

The advances of the past ten years have made it as treatable as diabetes. As in diabetes, the patient must be kept for long periods on maintenance medication. The anti-epileptic drugs he takes should be viewed as substitution therapy because they are necessary substitutes for chemical configurations which his injured brain does not produce. Most of the anti-epileptic drugs are potentially dangerous; therefore, close medical supervision is essential.

What is epilepsy?—Anyone of any age can become an epileptic. Many persons who do not know what is the matter with them have epilepsy, for it can masquerade in many forms. Epilepsy is an irritative reaction to brain injury. It does not occur as a result of those severe brain injuries which destroy the nerve cells of the brain, but as a result of minor injuries which produce physiological rather than histological changes. However, a zone of mild injury may occur around an area of severe injury, so epilepsy may occur in association with severe injury, as for example, in cerebral palsy. Also, after severe injury, the brain cells which have not been mortally injured may, as they recover, go through an irritative stage. The physiological, intermediate (non-structural) injuries which cause epilepsy can be produced in many ways: by trauma, infections, disorders of cerebral blood supply, and by tumours. In fact, by almost anything which in greater force or concentration can produce gross or histological injury.

Heredity is not as important a factor in epilepsy as was once supposed. In general, the chance that an epileptic will have an epileptic child is only one in fifty, and the chance that a person with epilepsy will have a near relative with epilepsy is only one in fifty. The chance that anyone will have epilepsy is about one in one hundred.

Anti epilectic treatment:—The medical treatment of epilepsy is directed at damping down the electrochemical explosions in the brain with suitable "extinguishers." Different types of drugs have to be used against different types of discharge. More than five new anti-epileptic substances have been discovered in the last ten years, bringing the total number to over ten, and making it possible to control epileptic seizures in 80 per cent of all persons with epilepsy.

As in other conditions, the results that are obtained with treatment depend upon the experience, competence, and diligence of the therapist, but anti-epileptic substances are no more difficult to use than the commonly employed antibiotics. The interested internist or general practitioner can treat epilepsy as well as, and possibly better than, anyone else, for the modern treatment of epilepsy requires blood counts and liver tolerance tests to guard against special sensitivities.

Detailed recommendations:—Several types of epileptic discharge must be differentiated if treatment is to be maximally effective. These discharges correspond to the four chief types of epileptic seizure:

1. Convulsions, either focal or generalized, are associated with abnormally fast electrical discharges from the brain.

2. Trance-like attacks and confusional episodes usually originate from focal discharges in the anterior part of the temporal lobe.

3. Seizure consisting of attacks of rage or pain and sudden episodic symptoms referrable to the vegetative nervous system are usually unassociated with cortical abnormality during the attack, but during light sleep, when the deeper structures assume control of the cortex, positive-spike-seizure discharges appear, indicating an epileptic type of disorder in the thalamic and hypothalamic centres.

4. Brief attacks of blankness and blinking, which are called petit mal seizures, are associated with a gallop type of dysrhythmia; i.e., a fast discharge followed by a slow wave, the two components alternating three times per second.

The first three of these types of disorder are best treated with Dilantin and Phenobarbital, or Dilantin and Mesantoin. Phenobarbital is the least toxic of these substances, and also the least potent. It may be used

alone in mild cases and in young children, or when the patient's situation makes it permissible to experiment with minimal medication. In general, however, phenobarbital is used most effectively to supplement the more potent anticonvulsant action of Dilantin. The latter is commonly given to adults in a dose of 0·1 gm. three times a day with meals, and phenobarbital in a dose of 0·1 gm. at bedtime; thus, any drowsiness which develops from the phenobarbital will not be disadvantageous. Dilantin does not usually cause drowsiness at high dosage, but only double vision, dizziness, nystagmus, and inco-ordination. Such symptoms should not be considered true "toxic" symptoms. They are merely annoying side effects which develop at high dosage; they cease within a few days after the dosage has been decreased. About 10% of children taking Dilantin develop hypertrophy of the gums. This is not due to vitamin C deficiency; the ingestion of large amounts of vitamin C does not prevent it. The hypertrophy will subside if the Dilantin is discontinued or the dosage reduced. However, in cases in which Dilantin controls the seizure better than any other substance, the patient may prefer to have the hypertrophic gum tissue removed periodically by a competent oral surgeon rather than relinquish the protection afforded by the Dilantin. A new anti-convulsant substance, called Nuvarone, can be substituted for Dilantin, or added to the Dilantin. It is less potent than Dilantin, but can be taken in very high dosage because it has almost no side effects. No cases have been encountered in which Nuvarone has produced hypertrophy of the gums, nor does it produce urticaria such as occurs in rare cases with Dilantin. Mesantion is usually held in reserve and used in resistant cases as a substitute for phenobarbital in combination with Dilantin or Nuvarone. The dosage of Mesantoin is started at 0·1 gm. per day, and is increased to tolerance, which in adults is usually 0·3 gm. per day. Higher dosages are likely to cause drowsiness. In order to use maximal amounts of Mesantoin, the phenobarbital dosage usually has to be reduced or discontinued. Phenobarbital should not be stopped abruptly, however, but should be gradually reduced over a three or four-day period; it is important to recognize that sudden withdrawal of phenobarbital is likely to precipitate convulsive seizures.

About 10 per cent of persons are sensitive to Mesantoin. Regardless of the rate at which the dosage is increased, the sensitivity usually appears a week or two after the start of Mesantoin therapy. The patient develops one or more of the following symptoms: fever, lymphadenopathy, scarlatiniform rash. If Mesantoin medication is continued in the face of such sensitivity reaction blood damage is likely to develop. However, if the drug is discontinued, the entire reaction usually subsides in three or four days, without development of a blood dyscrasia. In most cases it is possible to reinstitute Mesantoin therapy after the reaction has subsided, though it is wise to do so cautiously by starting with small doses, and only after assurance has been obtained from blood counts that the blood picture is entirely normal.

Petit mal seizures are best treated with Tridione and a near relative of Tridione, called Paradione. Because in sensitive persons both of these substances cause blood damage (Tridione more commonly than Paradione), good practice requires a monthly white cell count to guard against leukopenia. If the white cell count falls below 3,000, Tridione or Paradione medication should be discontinued. In such cases, the white cell count usually returns to normal within two or three weeks.

When grand mal and petit mal occur in combination, the case is likely to be exceedingly difficult to treat because Dilantin tends to increase petit mal, whereas Tridione tends to increase grand mal seizures. However, in some cases, Dilantin and Tridione can be used together successfully, so the combination is worth trying. The danger of blood damage is increased by using Mesantoin and Tridione together, and this combination should be avoided.

For patients with both grand mal and petit mal seizures, and for all cases which are resistant to other types of medication, a new drug called Phenurone has been found to be useful. It is the first general antiepileptic substance. It does not produce drowsiness or other handicapping side effects, and is not particularly toxic. But some persons are sensitive to this substance and react with serious liver damage. It must be used, therefore, with caution and is held in reserve and only used when less hazardous remedies have failed to control seizures. When the patient has personality disorders or psychiatric symptoms, Phenurone may cause a great intensification of these. The exacerbation of psychiatric disorder usually subsides promptly, however, when the Phenurone is discontinued or the dosage reduced.

Phenurone is usually most effective when used in combination with other drugs. The starting dosage is 0·5 gm. three times a day, and it should be used to supplement that combination of anti-convulsants which have previously been found most effective in the patient under consideration. Once seizures are controlled, an effort can be made to simplify and improve the medication by eliminating (or decreasing the dosage of) any substance which is producing annoying side effects or which is considered hazardous.—*The General Practitioner.*

Resistance of tubercle bacilli to PAS.—(*Presse Med. Paris.*, Vol. 59, 21-22, 1951, Eng. Abst.)

43 patients with pulmonary tuberculosis were treated by Rist and Veran, with PAS, (20 to 25 gm. of the sodium salt administered daily). They carried out *in vitro* sensitivity tests before administering the drug and

at intervals of six weeks after the institution of the treatment. The object of this was to study the development of resistance to the drug. Some of the strains of the bacilli isolated from the 43 patients were more resistant than the average even before the therapy was started; but the number of resistant strains increased during the treatment. A few strains tolerated as much as 12 to 50 gamma of PAS per c.c. The resistance to PAS developed quite as quickly as resistance to streptomycin. The authors noted also that when the bacilli from a patient became resistant to 2·5 gamma of PAS per c.c., the patient no longer derived any clinical benefit from the PAS, though he might have done so previously. 9 of these 43 patients who showed temporary improvement but relapsed in about a month after the bacilli resisted 2·5 gamma of PAS per c.c.

As PAS has been found to be a really valuable drug in non-cavitary forms of tuberculosis and occasionally also in the cavitary forms it is desirable to avoid development of resistance to the drug. For this reason, the drug should be given for no longer than 4 to 6 weeks and then only to patients in whom the disappearance of the bacilli or at least some effect on nodular lesions may be expected in that short time or in whom a nonfebrile effect is desired before any contemplated operation. PAS should then be combined with streptomycin as combined treatment was experimentally proved to prevent resistance to both drugs. In streptomycin-contraindicated cases and in cases in which resistance to streptomycin has developed, combined treatment with PAS and sulphonamides is recommended by the authors.

REVIEWS OF BOOKS, PERIODICALS AND REPORTS

Endeavour (January 1952).

This British quarterly scientific review has entered on its eleventh year of useful existence and continues to maintain its usual high level of excellence. It provides both the lay and scientific readers with a rich variety of accurate scientific information in the form of instructive and readable articles written (as far as possible in non-technical understandable language) by eminent men well-versed in their particular fields of research. These articles embody the results of all the recent researches in all branches of science. The contributions will instruct even specialists in their specialities although largely written at a level suited to the average general reader with a scientific bias, who loves to learn yet more of what is continually happening in the world around him.

The number under review begins with the second instalment of an editorial on the accessibility of knowledge in which the learned editor offers sound and practical suggestions and advice on classifying and indexing of scientific knowledge, published in books pamphlets and journals. "The correct labelling of a book is an expert's job" says the Editor.

"Some recent advances in chromatography" have been lucidly described with suitable illustrations by the Nobel prizeman of 1948, Dr. A.W.K. Tiselins of Sweden. The recent British scientific work on Geological and Glaciological research in Spitsbergen described by Mr. Hutchin's holds great promise of results of fundamental importance. "Some aspects of insecticide biochemistry" are ably dealt with by Mr. Winternigham, Biochemist of the British Scientific and Industrial Research Dept. He says the recent work in Britain and America, has shown that the house-flies which are becoming resistant to repeated treatments with DDT are capable of degrading the absorbed insecticide to a non-toxic substance, probably by enzyme action.

[Quite recently we have been reading in the lay and medical press of mosquitoes subjected to prolonged and repeated DDT treatment for the control of malaria in Mexico and elsewhere which are also showing a similar tendency to get D.D.T.-resistant.—T.N.S.B.]

The methods of manufacture, properties and merits of Terylene a new synthetic textile fibre which bids fair to become highly popular and also relatively cheap, manufactured from aromatic polyesters, are described by Mr. Whinfield of the I.C.I. Ltd. Dr. Stiles of the Br. National Physical Laboratory whose name is associated with the discovery in 1932 of the directional property of retinal sensitivity (known as the Stiles-Crawford effect), has written a very informing article profusely illustrated with rich coloured plates, on the perception of colour. The experimental breeding of dairy cattle is the subject of a highly instructive article containing practical hints on cattle breeding in hot climates, by Mr. J. P. Maule, Director of the Commonwealth bureau of animal breeding and genetics. New facts and incidents in the life of William Higgins, the Great Irish Chemist (1763—1825) have been described by Dr. Wheeler of Dublin University who comes to the conclusion that Higgins was the first to approach an atomic symbolism of the modern type and to apply a Daltonian species of theory to the determination of the molecular composition of some common gases. Higgins has thus a claim to be considered the originator so long ago as the 18th century, of the chemical atomic theory which was later formulated by Dalton in a manner acceptable to the chemists.—T.N.S.B.

The Bengal Medical Directory 1951—Edited by Dr. P. K. GUHA, published by Messrs. C. Hopewell & Co. Calcutta. Priced at

Rs. 12/8/- is published under the auspices of the Bengal Branch of the Indian Medical Association.

The book gives detailed particulars about the growth of the Medical Institution in Calcutta. The policy and the extent of medical relief in West Bengal are given in detail. It contains also the speech delivered at the Provincial Conference by Dr. Mukerjee. This speech should be read by Legislators, departmental advisers to Government and the Ministers of States. Priority to rural water supply, rural communications adequate drainage of the villages, rehabilitation and consolidation of the existing institutions should be the main aim of the Public Health Policy during the next five years. It is suggested that similar directories or reports should be made available from every State under the auspices of the Indian Medical Association. —N. S. N.

Fractures, Dislocations and Sprains—By JHON ALBERT KEY, B.S., M.D., Clinical Professor of Orthopaedic Surgery, Washington University School of Medicine, Associate Surgeon Barnes, and Children Hospital etc., and H. EARLE CONWELL, M.D., F.A.C.S., Associate Professor of Orthopaedic Surgery, University of Alabama School of Medicine etc., 5th edition, 1951 Pages, 1232. Messrs C. V. Mosby & Co. 3207, Washington Bonlward, St. Louis 3. Missowin.

The work is a comprehensive one and is profusely illustrated. Work and experience on medullary fixation of fractures of femur and tibia are included. In this country where the bone setters are busy and where the public are very credulous, treatment of fractures, dislocations and sprains ought to be undertaken by every qualified practitioner and general surgeon. The book provides detailed advice and instructions. All Medical libraries should stock this valuable book.—N.S.N.

ACKNOWLEDGEMENT

We have received the Prospectus for the Occupational Therapy Training School, Bombay, issued under the signature of Dr. R. G. Dhayagude, Dean of K. E. M. Hospital, Bombay. The school offers a two year diploma course open to students, with good health, a well adjusted personality and academic and creative abilities. They should be at lesat SSLC holders not less than 18 years of age and possess a sound knowledge of English to be able to follow the courses of study. The Director is Mrs. Kamala V. Nimbkar who possesses high educational attainments and holds specialist degrees and diplomas of American and British Universities and the Assistant Director Miss Gerda Boggild is also a highly qualified lady with European degrees. Medical subjects which include anatomy physiology, psychology, pathology, bacteriology, kinesiology, orthopaedics, physical education, neurology etc. as also the theory and practice of occupational therapy will be taught by competent and qualified doctors and specialists. The total fees and expenses for the whole course of 2 years will be approximately Rs. 800. The scope of employment for persons graduating from this school is stated to be wide and varied. We welcome this new venture which is bound to progress under the aegis of the K.E.M. Hospital. This new profession of occupational therapy offers as the promoters say "challenging opportunities to young men and women who desire to help the sick and disabled."

NEWS AND NOTES

New Anti-Tubercular Drug :—Nicotibine

In the past month or so reports have appeared in the newspapers concerning the remarkable results obtained with the hydrazide of isonicotinic acid in the treatment of tuberculosis.

This new drug, known as NICOTIBINE, is produced by the Research Laboratories of Lepetit S.A., of Milan, Italy, and will shortly be available to the medical profession in India.

In the meantime, a free gift of NICOTIBINE made to the Government of India Health authorities is under trial by them. Other T. B. Sanatoria and T. B. Specialists interested in conducting clinical trials with NICOTIBINE are invited to write to the sole representatives of the firm in India: Biddle Sawyer & Co. (India) Ltd., 25, Dalal Street, Fort, Bombay 1, for further information.

Machine Enables "Iron lung" Patients to Read

A machine which makes reading possible for people confined in "iron lungs" has been introduced by a British firm. The machine —a microfilm reader—is operated by a scientifically designed switch with all the controls easily worked by the patient, either with the chin, elbow or knee. The machine can be placed on a table or on the floor to project the image onto the ceiling or a screen. The lightest pressure will change the sequence of reading.

Outstanding features of the machine are that it operates silently and that projection can be at any angle without damage to the lamp. The manufacturers claim to be the first firm in Europe to study the problems of reading for the disabled.—*B. I. S. Med. News*, 7-3-'52.

New Drug to Offset Thrombosis

A synthetic drug which may contribute substantially to the prevention of thrombosis—coagulation of the blood—is being made by a Darlington (North England) firm. Known as Dextran, the drug is a blood-plasma substitute derived from the fermentation of cane sugar. It has proved to be as effective as blood plasma in cases where a patient suffering from wounds of burns does not need transfusions of full blood.

Tests made in Birmingham hospitals with the drug are reported to have proved it to have considerable anti-coagulant effects. It is now being manufactured, but is unlikely to be available generally to the medical profession for some time.—*B. I. S. Med. News*, 7-3-'52.

New Advance in Brain Surgery

Four British medical specialists have introduced a surgical operation which is considered to mark a new advance in brain surgery.

Details of this new surgical technique are described in the current issue of the *Lancet*. It is a limited operation which is considered to avoid damage to personality which is sometimes caused by the standard method of performing frontal leucotomy.

This new type of brain surgery has been performed on 29 patients during the past four years. The four specialists who have perfected the technique, Dr. Whitty, Dr. Duffield, Dr. Tow and Sir Hugh Cairns consider that this operation still requires further trials in certain types of mental illness.

Two striking cures as a result of this operation are reported in the *Lancet*. One woman who suffered from severe obsessions underwent this operation and when examined two years later, was found to be coping quite adequately with her work and problems. The other patient was troubled with great anxiety and depression and after the operation, was able to lead a happy and normal married life.

Local anæsthetic was used when performing this operation on a male patient. The surgeons report that while part of his brain was being removed he talked freely, answered questions intelligently, carried out calculations, used his limbs and was not aware of any change in his physical or emotional state. —*B. I. S. Med. News*, 13-3-'52.

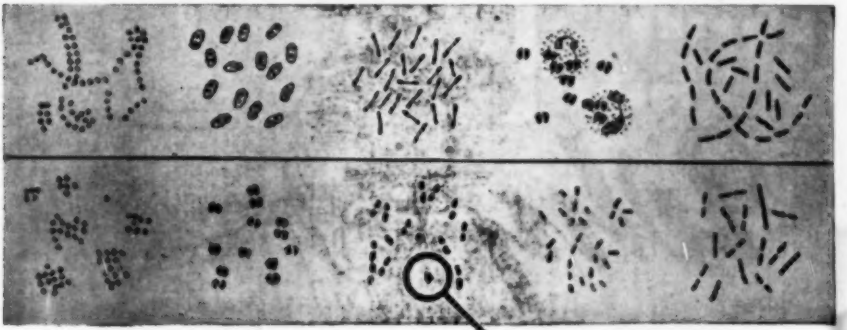
W.H.O. Regional Office (S.E. Asia) Visited by the Director General

Dr. Brock Chisholm, Director General of the W.H.O., arrived in New Delhi on 20th February 1952 and according to a press release from the Regional Office for S.E. Asia, he has during this visit to Delhi (Feb. 20–25) achieved two main purposes. The first was to have a talk with Prime Minister Nehru on health problems and to discuss possible long term arrangements for the adequate functioning of the S.E. Asia Regional Office now at Delhi. Secondly he has been able to meet the staff of the Regional office opened in January 1949, which has been able to push on with a variety of country programmes more vigorously and more quickly there would have been possible for a centralised organization stationed thousands of miles away. By this system of regionalisation, WHO has been able to assist in more than 30 projects actually in operation in S.E. Asia at present. Many of these 30 projects are also receiving assistance from UNICEF. In India alone, WHO in co-operation with UNICEF has till now assisted in the following 12 projects involving more than 30 international field staff:—Malarial control in selected areas in 4 States; Venereal disease control, for 2 years in Himachal Pradesh and now in Madras; three tuberculous demonstration centres in New Delhi, Trivandrum and Patna; a maternal and child health project at Najafgarh in Delhi; assistance to mass BCG vaccination campaigns in a number of States; expert engineering help for construction of the Poona Penicillin Factory and Dr. Stone's visit to help in the initiation of experiments in population control. The regionalisation and consequent decentralization have enabled the health programmes in a region to be developed to suit the particular conditions and needs of that country; also the international assistance, provided on Government request can be adapted not only to the country's needs but also to that country's capacity to absorb and gain maximum benefit from it. The WHO has directed and coordinated all international health work. The total cost of proposed WHO assistance to India in 1952 is 690000 dollars from the regular budget in addition to a million dollars or more expected to become available from other sources for health projects. The programme for the next year was also discussed and outlined. This will include amongst several other items the provision of all round advanced training in nursing, rural and urban public health work midwifery, health visiting etc., in various centres of India, including Madras, Hyderabad etc.

Dr. Brock Chisholm made a brief halt at Madras on his way to Colombo and was met by the State Health Department Officers who discussed various problems of health with him. Dr. Chisholm was accompanied by Dr. Milton P. Siegel, WHO Assistant Director-General and Dr. C. Mani, WHO Regional Director for S.E. Asia.

CORRIGENDUM

In advertisement page 90 of the March '52 issue of THE ANTISEPTIC the product of National Drug Company printed *as* 'Resin' *should be* 'Resion.'



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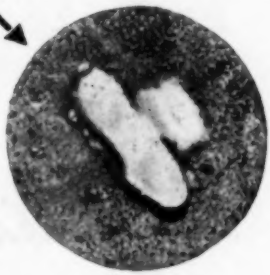

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*PenStrep is the trade-mark of Merck & Co., Inc.

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FIRST AID IN ACCIDENTS

మొదటండి వేలాడగట్టు పద్ధతులు:—

పెద్దకట్టు. చిన్నకట్టు.

మొదటండి వేలాడగట్టులకు తాత్కాలికంగా కల్పింపబడిన కుడ్డలు (improvised slings):—చిన్నకట్టుకు, చొక్కాయొక్క చేతిలో మణికట్టుదగ్గర మడిచిపెట్టిన అంచును చొక్కాయొక్క రొమ్మునకు సూదితో తగిలించుము. పెద్దకట్టుకు, చొక్కాయొక్క చేతి అంచునున్ను మధ్యభాగమునున్ను చొక్కాయొక్క రొమ్మునకు సూదితో తగిలించుము.

Shows Telugu Edition 29th Page out of 248 Pages.

FIRST AID IN ACCIDENTS

4. தோட் பட்டை எலும்பு ஒடிதல்:—ஒரு அகல மடிப்புக் கட்டின் மத்திய பாகத்தை அடிபட்ட பக்கத்தி லுள்ள கக்கத்துள் வைத்து அடி படாத பக்கமாயுள்ள தோளின் மேல் முனைகளைக் கொண்டுபோய் அக்குளின் கீழே முடி போட வேண்டும். கையைத் தூக்கில் தொங்க விடவேண்டும்.

5. புஜவெலும்பின் உடைப்பு:—

(i) குறிகள்:—சாதாரணமாய் உடைப்புக்குரிய குணங்கள் யாவும் இதில் காணப்படும். 71-ம் பக்கத்தைப் பார்க்கவும்.

(ii) சிகிச்சை:—டாக்டருக்கு உடனே சொல்லியனுப்பவேண்டும். இதன் மத்தியில் இரண்டு அல்லது அதற்கு மேற்பட்ட பத்தைகளை யெடுத்து, அக்குள் முதல் மூழங்கை வரையில் வரும்படி அடிப்பாகத்தில் ஒன்றும், தோட்பட்டை முதல்

Shows Tamil Edition 87th Page out of 244 Pages.

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